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The OIL WEEKLY

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NEWS

FEB 4 1941

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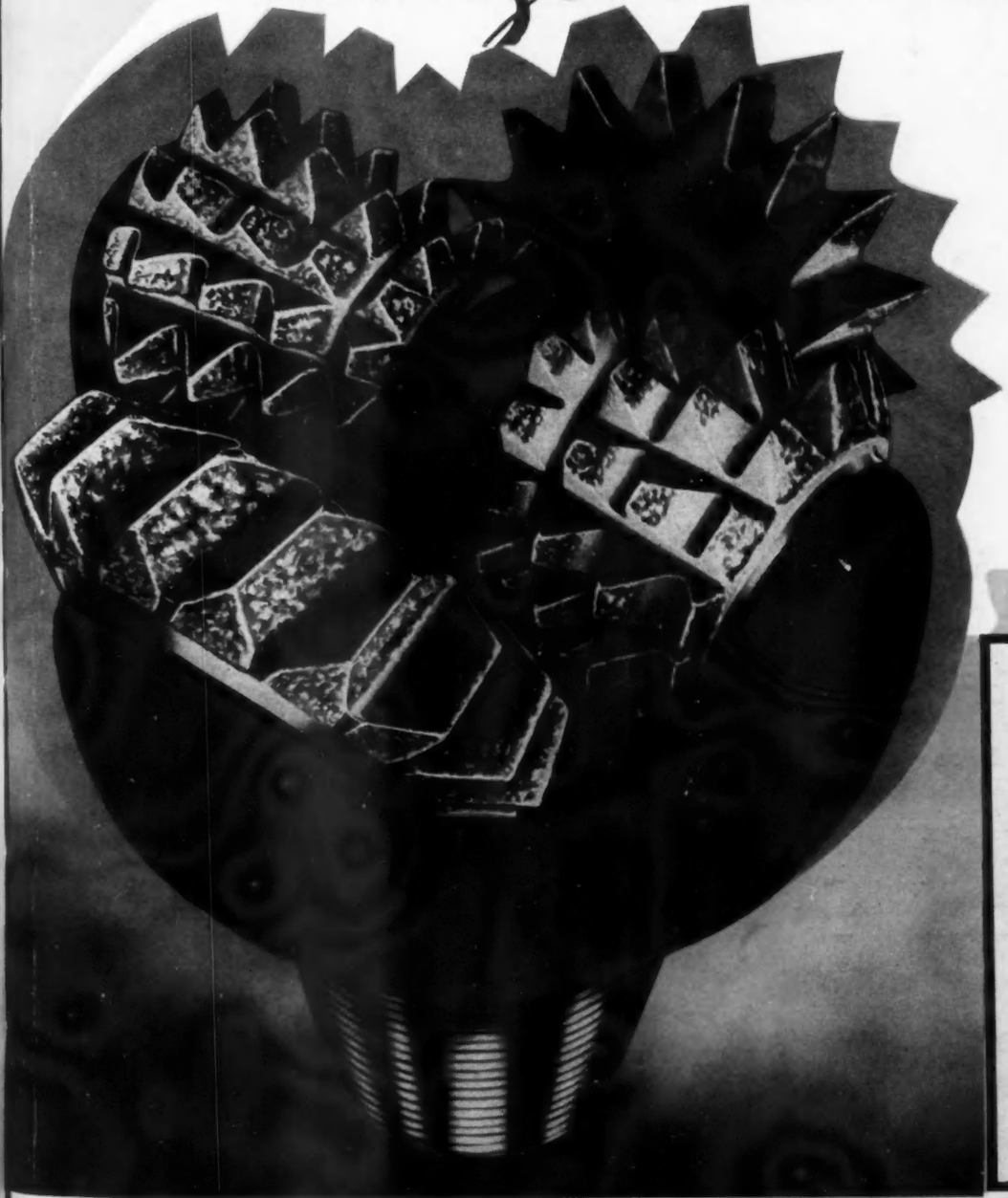

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VOLUME 72 FEBRUARY 3, 1941

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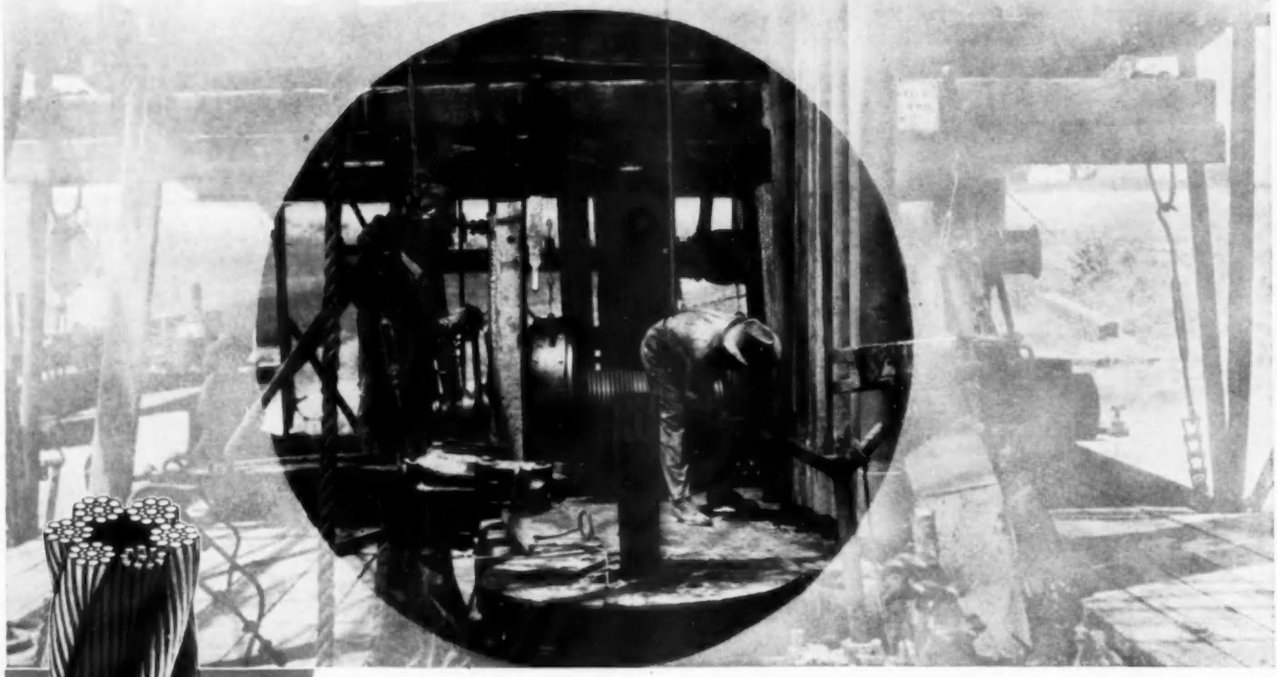
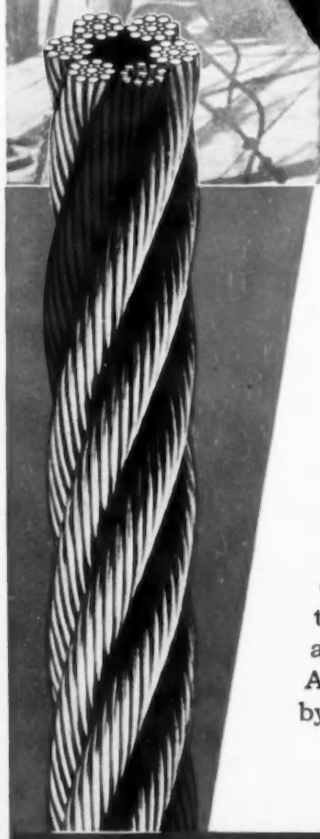
TRU·LAY PREFORMED LINES
Help Reduce Shut-Downs





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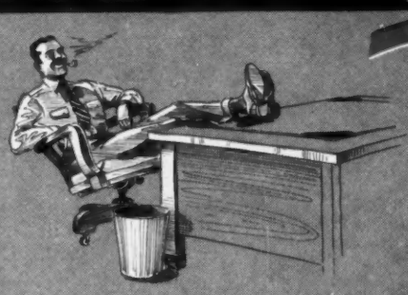

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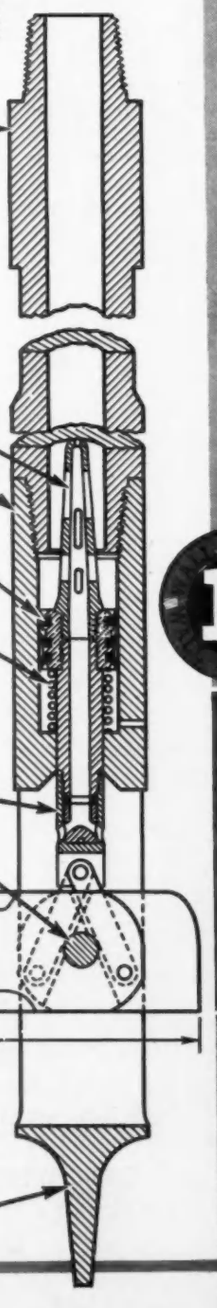

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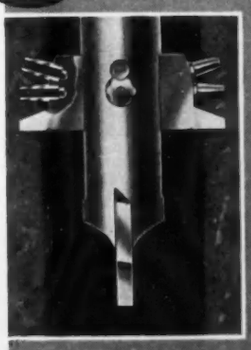

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LOOKING AHEAD

WITH THE EDITOR

SOMEONE HAS SAID that drilling a hole down to 5000 feet is purely a mechanical operation, and beyond that it is a drilling-mud problem. It follows that as more drilling progressed to the greater depths and drilling fluids became more important, a large number of private and oil-company research workers have contributed a great amount of information tending toward scientific understanding of the principles involved in clay-suspension control with the result that better standardized field measuring methods are applied. This research has advanced the mud question and its importance far from its original conception of a fluid that could be circulated through the hole to remove drill cuttings, although the latter purpose retains its importance.

Study of clay suspensions has compelled the drilling mud researchers to draw heavily on information accumulated by chemists who have specialized in soils and ceremics which involve colloid chemistry. The petroleum engineer normally is not fully versed in this special branch of chemistry, and often is at a loss to understand the reasons for the chemical treatment to which he submits his drilling fluid.

Sylvain J. Pirson, head of the Petroleum and Natural Gas Department of Pennsylvania State College, has prepared for us an article, to be presented in two parts, which explains in as simple language as possible the properties of drilling fluid with which the petroleum engineer comes in contact in his daily work and in his scientific readings.

DRILLING WITH THE TABLE rotating 450 and 500 times per minute to depths as great as 12,000 feet has been accomplished, while 750 revolutions per minute speed has been attained in experiments. Plans are being considered looking to as much as 1000 revolutions per minute. Speeds of 450 and 500 revolutions per minute are obtained without special equipment, but greater than that will involve some changes.

Advantages of high rate of drill penetration are obvious, and much study to that end is being done by operators in the Rio Bravo field of California, where the depth is around 11,000 feet.

If higher table speeds are to be used, a well defined plan must be outlined and followed that will include every piece of equipment, including the derrick and substructure. More rapid changes from one kind of formation to another makes the mud problem of great importance. Inspection and maintenance of all items of equipment is imperative.

A report on what has been done and what is proposed to be accomplished in attaining higher drilling speeds in California is the subject of an article which is scheduled for early appearance in these pages.

The OIL WEEKLY, published every Monday. Entered as second-class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 1879.

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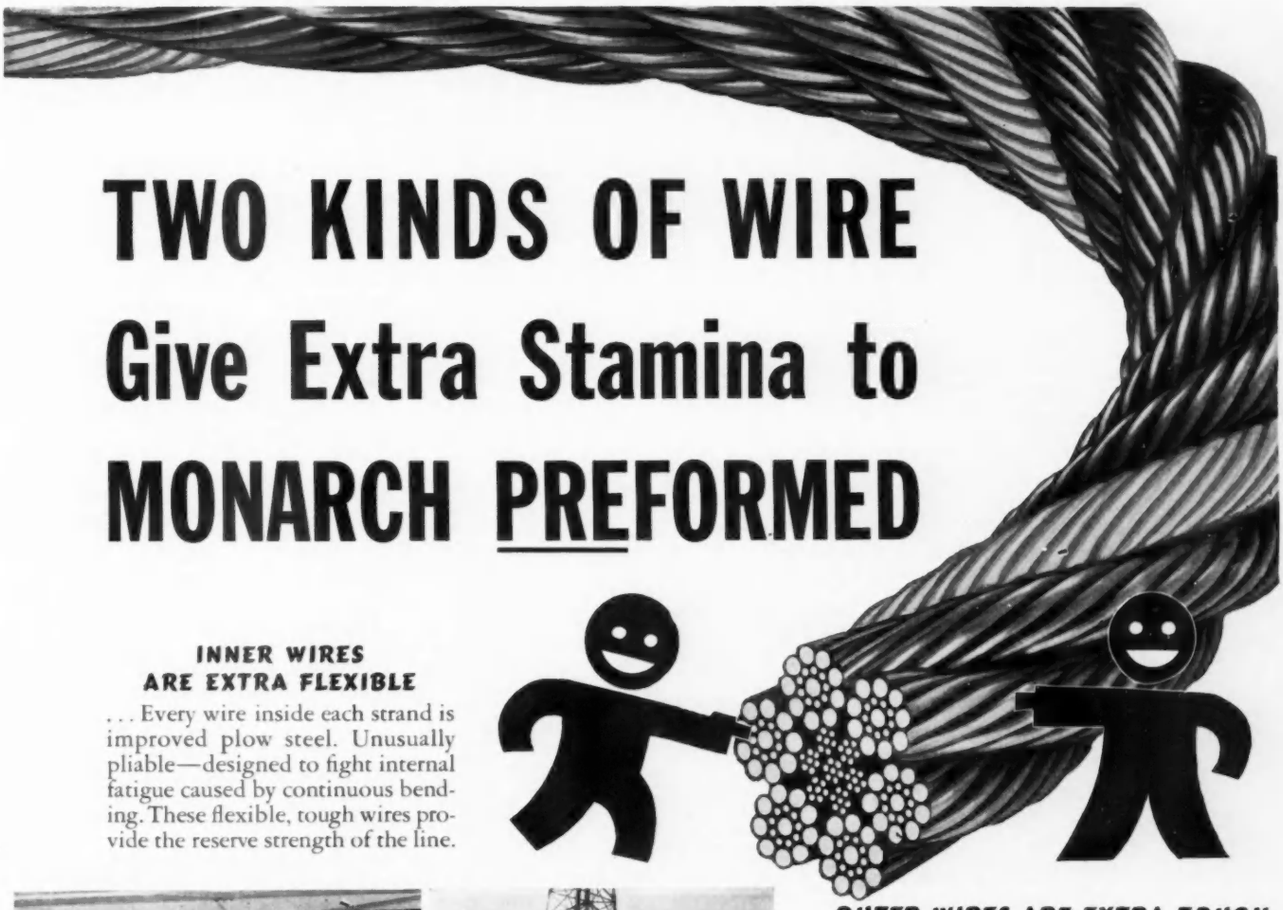

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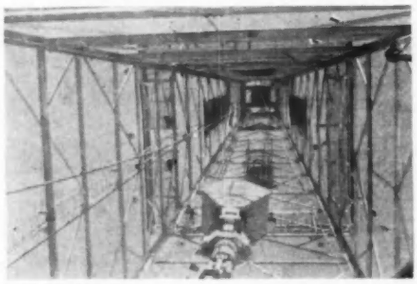

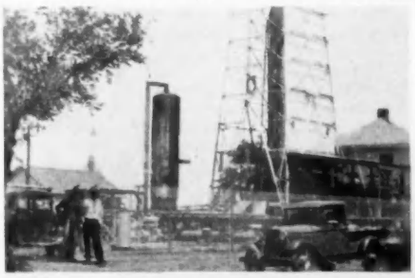

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Acidizing Hand Book takes up the purpose of acidizing, gives full information on formations which are treatable, tells how to determine treatability of formations, how to prepare a well for acidizing, and contains a section of tables extremely valuable to an operator planning to acidize a well.

The book is divided into 14 chapters which include:

Chemistry and Geology of Treatment—Treatment Acid—Preparation of Wells for Treatment—Mechanics of Treatment (4 chapters)—The Reaction of Salt Water to Treatment—Producing the Well After Treatment—Acidizing Gas Wells—Re-treatment and Multiple Stage Treatment—Other Uses of Muriatic Acid in the Field, and Computations in Acidizing.

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Letters to the Editor

Paleogeography vs. Paleography

I have just read Kornfield's article [Jan. 13, 1941] on stratigraphic traps and am very much taken with his treatment of the subject but I want to call your attention to a matter of usage printing of *paleographic*, a shortening of *paleogeographic*. Since *paleographic*, according to the dictionary, means something entirely different I hope you will scotch the use of such a word as this for *paleogeographic*.

In Volume 23, Number 3 of the Bulletin of the American Association of Petroleum Geologists (March, 1939) Mr. Ronald DeFord wrote a note as follows:

"In one or two places recently I have seen the word *paleography* used instead of *paleogeography*. This is certainly bad etymology. To delete the *geo* is to cut out the *earth*, the very heart of the word.

> "The dictionary says that paleography is The study of ancient modes of writing including inscriptions; the art or science of deciphering ancient writings, determining their origin, period, *etc.*

The use of *paleography* for *paleogeography* can thus lead to confusion among non-geologists.

"As the haplogic habit spreads and the geologic syncopators get seriously to work we may expect to see *paleontology* become *paleology*, but then *paleogeology* and *paleozoology* will also become *paleology*. This will greatly simplify the science; for one word will do the work of a dozen. Of course, no one will know exactly what the other fellow is talking about, but think of the saving in vocal energy, graphite, and printer's ink!"

This may remind you of the story of the farm boy hoeing a field who was asked by a stranger what he would get for his work. His reply was, "Nothin' if I do and hell if if I don't."

ROBERT B. CAMPBELL, *President,*

Peninsular Oil and Refining Company, Tampa, Florida.

Thanks to a long-time friend for a constructive letter. The Greeks had three words that have been combined into paleogeography to designate the geography of an ancient time: *palaio* meant ancient; *ge*, earth; and *graphein* to write or describe. Omission of *geo* leaves paleography, the study of ancient writings. May all geological authors henceforth remember that geography of ancient time is paleogeographic; that the shorter word, paleographic, has to do with ancient writings.

Apologies to the geological profession for misuse of the word paleogeography.

Apologies to author Kornfeld (not Kornfield) for Campbell's misspelling of his name.

Also, in behalf of Campbell, apologies to DeFord for Mr. Campbell's misquotation of DeFord's discussion in the A.A.P.G. Bulletin. DeFord actually wrote of "the *haplologic* habit" of leaving syllables out of words and not of "the "*haplogic* habit," which is not in the dictionary. If we had been changing the word on DeFord at all, we should have made it *haplographic*, as *haplography* is the word for "the inadvertent omission, in writing or copying, of one of two or more adjacent and similar letters, syllables, words, or lines"; while *haplology* has reference more specifically to the spoken rather than the written word, being defined as the contraction of a word by omission of one or more syllables in pronunciation and being explained as due to speed of utterance.

THE OIL WEEKLY

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The Oil Man's Calendar

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17-20	**American Institute of Mining & Metallurgical Engineers, New York.**
22	**North Texas Oil & Gas Association, Wichita Falls.**
24-25	**Liquefied Petroleum Gas Association, Chicago.**
27-28	**American Petroleum Institute, Division of Production, Southwestern District, Shreveport.**
MAR.	
11	**American Petroleum Institute, Division of Production, Spring Meeting, Pacific Coast District, Los Angeles.**
APR.	
1- 3	**Society of Exploration Geophysicists Houston..**
2- 4	**American Association of Petroleum Geologists, Twenty-sixth Annual Meeting, Houston.**
7-11	**American Chemical Society, St. Louis.**
16-18	**Western Petroleum Refiners Association, Hot Springs, Ark.**
17-18	**American Petroleum Institute, Division of Production, Eastern District, Pittsburgh.**
23-25	**Petroleum Industry Electrical Association, Tulsa.**
23-25	**Natural Gasoline Association of America, Dallas.**
24-25	**National Petroleum Association, Semi-Annual Meeting, Cleveland.**
25-26	**Petroleum and Natural Gas Conference, State College, Pa.**

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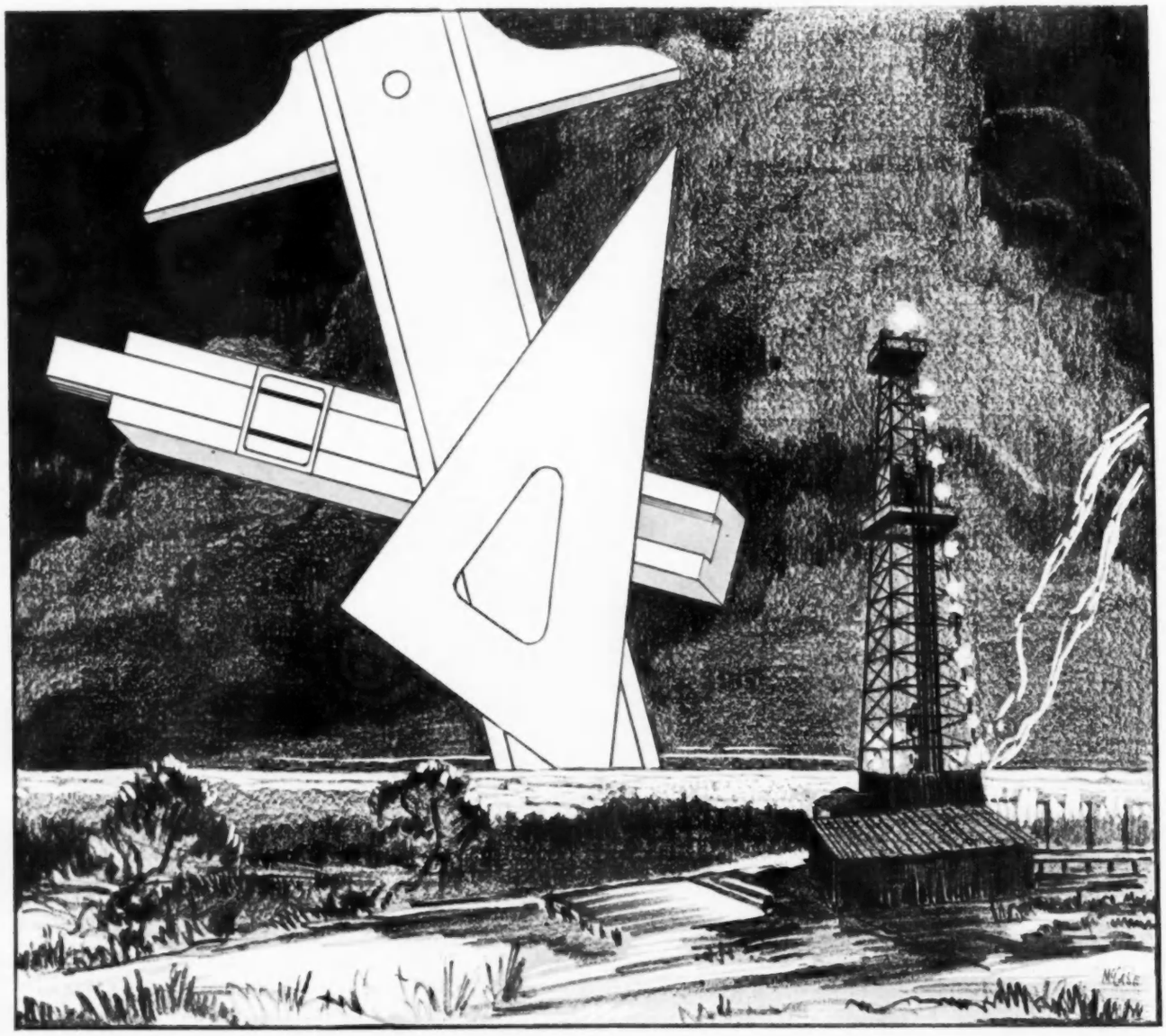

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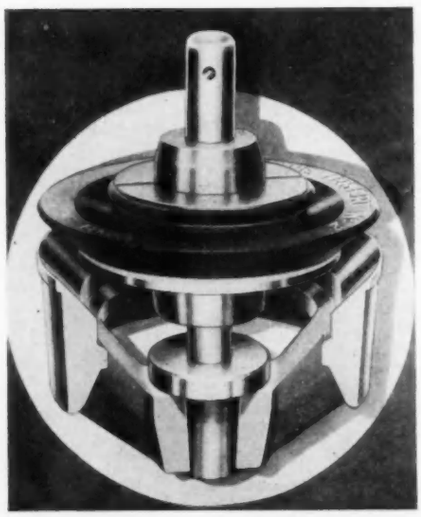

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THE OIL WEEKLY

FEBRUARY 3, 1941

VOLUME 100 NUMBER 9

The Changing Panorama

Oil Shows . . .

Notices have been sent out to members of Oil-World Exposition, Inc., by President John R. Suman (in private life, vice president, production, Humble Oil & Refining Company), asking them to attend an important meeting of the membership at the Rice Hotel, Tuesday noon, February 25. Oil-World Exposition is a chartered non-profit corporation, created to hold oil expositions in Houston. Membership is composed of oil men and manufacturers. President Suman's letter to the membership does not disclose what will be discussed at the meeting.

Houston and Tulsa have expositions scheduled within a month of each other in 1942. Houston formerly held an exposition on alternate years, fitting in with the alternate-year International Exposition at Tulsa. In 1939 the Oil-World Exposition sent out a questionnaire to oil-company executives asking what they thought about frequency and location of oil expositions. Most of the replies indicated that these executives favored only two shows in a four-year period and the majority of them indicated a willingness for Houston and Tulsa to divide the oil show business, some refusing to express an opinion as to location of shows.

The Houston exposition membership then voted to skip showing in 1941 which, under previous custom of an oil show every year, one in Tulsa and one in Houston, would have been the Houston year, and set its next exposition date in April, 1942.

The International Petroleum Exposition (Tulsa), set its show date for May, 1942, which was the regular year on which Tulsa would have shown under the previous custom. Net result is two oil shows planned for the same spring, with a war on and few manufacturers keen to show in both places the same year even in peace time. Oil-World Exposition representatives have contacted International Petroleum Exposition executives, trying to get Tulsa to agree to have a show once in four years, pledging that Houston also will have only one show in each four-year period, which would mean oil shows only on alternate years. International Petroleum Exposition officials take the position that they started the idea of oil shows, have a plant in which to hold shows, have changed from an every-year-at-Tulsa basis to an alternate-year-at-Tulsa basis, and that is as far as they feel they should go.

Germans Like Idea of Mexican Pipe Line . . .

The possibility that the much-contemplated oil pipe line across Mexico eventually may be built, without American aid if necessary, has been set forth in an article by Dr. G. F. Friedensburg, entitled "Der Plan einer mexikanischen Erdölleitung zum Stillen Ozean," in *Oel und Kohle*, vol. 36, No. 37, Berlin, October 1, 1940, p. 29.

The author pointed out that the plan for a 149-mile pipe line across Mexico at its narrowest point, across the Isthmus of Tehuantepec between Puerto Mexico and Salina Cruz, was of great economic and political scope, deserving attention not only in Mexico but in the entire world.

The author stated that both the United States government and the American oil industry naturally were antagonistic to the proposition, but that Mexico likely would not renounce the plan with finality, especially as other industrial countries, after the present war, could furnish technical and financial means for building the line.

Japan naturally would be interested in obtaining Mexican petroleum if it were available, through such a pipe line, on the Pacific coast, according to the article, in view of that country's urgent necessity and its dependence heretofore on the United States. But without the line, Mexican oil is not competitive with California oil, despite the availability of limited, existing rail facilities across Mexico along the route where the pipe line would be laid. Similarly, shipment around Cape Horn or through the Panama Canal runs up the cost of Mexican oil for Japan.

Reasons cited as to why the United States government logically would be opposed to construction of the proposed pipe line included (1) the probable unwillingness to sanction a plan that would alleviate Mexico's troubles in handling the expropriated oil industry, (2) the circumstance that the pipe line would short-circuit the American policy aimed directly in the field of petroleum economics at limiting the Japanese supply, and (3) the fact that the building of the line would decrease the receipts of the Panama Canal administration. The article further pointed out that the petroleum industry of the United States, suffering from overproduction and export difficulties, naturally would not be indifferent to whether the neighboring competitor received an important stimulation of sales with the help of American technique.

As to any actual progress on the idea, the article stated that none had been disclosed: that a New York firm had denied being approached on the proposition, although reports from Mexico City had indicated that agents of the Mexican government were negotiating with a New York construction firm.

The Lesson of

The following appeared in the New York Sun in January, 1938:

"France today is an object lesson whence leads the road along which the United States has been traveling and which it has not left as yet. A year and a half ago, in 1936, the government of the French Republic passed into the control of a coalition of the Socialistic and Communistic parties. This government took over the central bank and the munitions factories. It embarked upon a billion-dollar public works program. It kept two sets of books for the budget. It devalued the currency. It fixed the hours and wages of labor. Proceeding on the age-old fallacy, as we also have been doing, that money is wealth rather than a medium of exchange, this government held that to increase the purchasing power of the masses by lessening work and production was to solve the economic problem. In one short year this derangement, destruction and waste of capital brought a crisis to France. A short-lived boom gave way to a recession. The government blamed rising prices and proceeded to control them. Capital fled France and neither threats nor promises could bring it back. On June 21, 1937, just six months ago, this socialistic government resigned when the French Senate refused to give to it the powers of dictatorship."

★ ★ ★ ★ ★

The Lesson of France is Plain . . .

The Lesson of France Is Plain. Were it only written in the blood of those who have died for France, it would be bad enough—but it is written in the misery and suffering of the millions who have survived with little more than the hope that some country which has been spared the mistakes of France will rescue a once great nation from what otherwise will be slavery.

France is not great in her fall. The debacle of France is recounted in no glorious chapters. On the contrary, we see in France a nation betrayed by itself, fallen because of mistakes which were selfish mistakes, shared in by those whose ability to see was blinded only by partisanship, by greed of power, by hatred of fellow Frenchmen—mistakes which were founded on principles which are sadly familiar to Americans, because America comes closer to approaching France than any other nation.

France has seen her mistakes too late. The heel of the conquerer is on her neck.

In America, it is not too late. We can profit by the mistakes of France. The handwriting which appeared on her walls too late to help still blazes for us to see here across the Atlantic.

Whose job is it to see that America profits by the Lesson of France? Is it the job

f France ★ ★ ★

And this, only three years later:

"If all free nations have learned the terrible lesson of our disaster (the disaster of France); if they have learned that there is no liberty without security and no security without unity; if they have learned that freedom, born of discipline and strength, can be saved only by disciplined strength; if they have learned that a common faith is the condition of a common victory; if they have learned that you cannot fight planes and tanks with words and strikes; if they have learned to lay aside in times of national danger, the 'comfort and smoothness,' the rivalries and greeds of ordinary life; if they have learned 'to fill the unforgiving minute' with 60 seconds of efficient work; if they have learned the full and sinister meaning of those two words, the most tragic in any language: too late, then we have not suffered in vain, then France once more, at the cost of her blood and tears, has saved the world from darkness and servitude, and that is why, however painful the duty was to me, I have accepted to tell you today of our faults, pains, and hopes, lest you forget, lest you forget."—*Andre Maurois, distinguished historian and soldier of France in an address, "The Lesson of France," before the Congress of American Industry, 1940.*

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only of our political leaders? Is it the job only of our industrial leaders? Is it the job of only those who are grouped under the head of "labor"?

It is the job of all of these—of all Americans who love America.

It is your job and mine. It calls for unselfishness, individual and mass unselfishness —it calls for a unity which cannot be found in group hatreds (we will not say "class" hatreds, because, in spite of the efforts which have been made to foster the idea, there are no class barriers in America).

In solving the problem of America—which was the problem of France only so few years ago—we may expect no help from political, union or industrial leaders whose underlying motives are individual greed. The solution must come from the rank and file of ALL groups.

Unity will solve our problem. Strife will make it worse.

There is at stake the ALL of ALL the members of ALL the groups. Why not let us take the sensible view that the differences which exist are not insurmountable, and that the public good demands that we surmount them? The solution has a simple approach, an approach in the ARBITRATION of differences.

Hawkins Field Rated Largest Reserve Added in Year

By BRAD MILLS, Associate Editor

THE new Hawkins field, a domal-type discovery in southeast Wood County, East Texas, rates potentially as the largest United States oil reserve added during 1940. Located only 15 miles west and slightly north of the Gladewater section of the East Texas field, the new producing area yields a 27-30-gravity black asphalt oil from the Woodbine sand. This is in sharp contrast to a much lighter oil produced from the same formation in the East Texas field, but in line with such Woodbine producers as Cayuga.

With an indicated producing area of 7500 to 10,000 acres and from 25 to 200 feet of actual oil sand in the 500-to-700-foot Woodbine section, the field seems to be a reserve of 300 to 600 million barrels. Development has been so limited that definite trends and structural characteristics have not been established, however. The discovery is recognized as one of major importance because of the favorable location of the field, the ease with which development may be completed, the firm demand for fuel oil, and the large number of wells in line for completion this year.

An evaluation of the discovery based strictly on salient features of the Woodbine sand is enough to guarantee a substantial production of oil over a long period. Characteristics of this sand are so well known that the completion of large flowing wells in any new area producing from the Woodbine can not be taken lightly. The 3½-mile distance between the discovery well and the more recent and more prolific townlot producers established the new field as one of major proportions from acreage and reserve standpoints, and has intensified leasing operations over a wide area.

The Hawkins discovery undoubtedly will be reflected by an extensive wildcatting campaign over a 100-mile strip extending from around Mt. Pleasant to Palestine. A number of structures have been mapped in the general area, and it is reasonable to assume that additional oil fields will be found in the Woodbine sand.

Geology Not Complicated

The geology of the Hawkins area is interesting but not complicated. The structure is an elongated anticline in a hilly area with an average surface elevation of about 400 feet. The maximum structural uplift is about 950 feet and the closure about 450 feet. The maximum Woodbine sand thickness is believed to be about 700 feet, of which the upper 100 to 150 feet may carry gas. Of the remaining section between the gas-oil contact and oil-water contact, as much as 200 feet may be saturated oil sand in the favorably located wells, and about the same thickness may be shale.

The Hawkins structure was caused by the thinning interval between the Pecan Gap chalk and the Woodbine sand. In one well a few miles from the field this interval was about 2000 feet, while in the first large townlot producer at Hawkins the interval was only 1400 feet. This thinning tendency greatly adds to the possibilities of the whole East Texas oil province, and the vast strip between Hawkins and Cayuga assumes a new importance, geologists contend.

The average thickness of the oil sand for the entire field can only be estimated. Electrical logs of two townlot wells show close to 100 feet of actual oil sand, but it is reasonable to assume that the average oil-sand thickness will be nearer to 50 feet. The discovery well was admittedly an edge producer, and the oil sand opened should not be compared with that in inside producers.

The Woodbine sand runs true to form in the Hawkins field, carrying ashy sands, red beds and lignitic sandy shales. Porosity is about 25 percent and permeability is high. The true producing zone in the two most recent townlot completions carried alternating streaks of oil sand and shale, but saturated oil sand strongly predominated in one of these wells.

The Woodbine sand apparently carries an abundance of gas at Hawkins, a condition considered favorable for producing heavy oil from a considerable depth. The heavy gas flow from the formation above the Woodbine (Eagle Ford) probably will be useful in development and repressuring work incidental to the true Woodbine. Lack of gas has increased production costs in such fields as Talco, a Paluxy producer.

When it is considered that the discovery well, a small producer, is located nearly 3½ miles from the more recently opened townlot sector, the Hawkins field must be recognized as one with vast potentialities. The span of more than 3 miles alone is significant, and since the townlot wells are large producers the greatest length of the field certainly will be more than the present maximum distance between wells. Should the field extend only 1 mile beyond townlot production, length of the field will be at least 4½ miles. It is not yet possible to map the field to indicate "length and width" trends, however. Possibility of non-productive sections between the discovery well and townlot is slight, but only additional development will show the true potentialities of the entire area.

Fault May Be Present

Jackson and Rotondi's Cobb 1, first Hawkins townlot producer, was about 400 feet higher structurally than Manziel's Morrison 1, the discovery well located nearly 3½ miles north and east of Cobb 1. It is significant to note that Cobb 1 was 800 feet higher structurally than Snyder's Holmes 1, a dry hole located only 2 miles southeast.

This sharper loss in structural elevation toward the southeast indicates a decided dip in that direction from the townsite, and adds some weight to the belief that a fault may be found between present production and the Sabine River.

The Cretaceous series at Hawkins is about typical of the general area, except for thinning of formations above the Woodbine. The Eagle Ford shale, first major member above the Woodbine sand, is the source of the heavy gas flow encountered in the field. The Sub-Clarksville sand in this predominantly shale body carries the gas. This sand streak has a maximum thickness of 75 feet, and is found near the top of the Eagle Ford shale. Both the Eagle Ford shale and Pecan Gap chalk of the Taylor formation thin over structures, the former pinching out up the west flank of the Sabine Uplift.

The Woodbine sand is characteristically mixed with ashy sands, red beds and lignitic, sandy shale. Although primarily a sand body, it is composed of impervious shale streaks of a lenticular nature between thicker streaks of sandy shales and true sands.

Other Cretaceous formations above the Eagle Ford, listing them downward, are the Navarro (composed of Arkadelphia clay and Nacatoch sand); the Taylor (composed of Upper Taylor shale, Pecan Gap chalk, and Lower Taylor shale), and the Austin chalk (composed of Blossom sand, Bonham clay, and Ector chalk). The Austin chalk is the Tokio of South Arkansas and North Louisiana.

Probable Producing Trend

Using Jackson and Rotondi's Cobb 1, first large Hawkins townsite producer, as a key well, a rough idea of probable producing trends may be gained. Cobb 1 has an elevation of 400 feet, and top of the Woodbine was encountered at 5365 feet. Bobby Manziel's Morrison 1, the discovery well shows an elevation of 423 feet, with top of the Woodbine sand at 4794 feet. Thus the Cobb 1 townsite producer is about 400 feet higher structurally than the Manziel discovery well located 3½ miles north and slightly west.

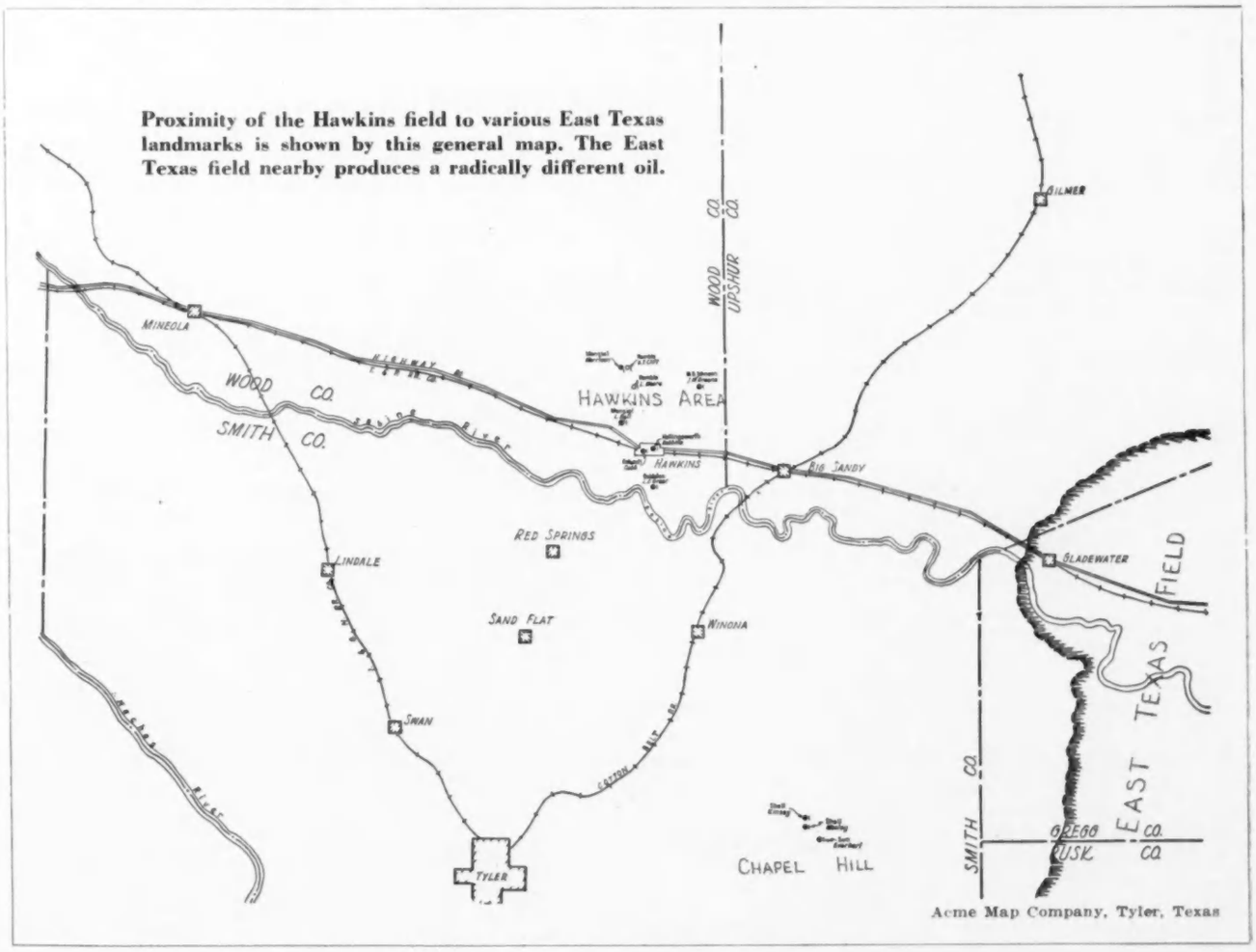
Hollingsworth Drilling Company's Robbins 1, second townlot producer, located about 1000 feet east by north of Cobb 1, has an elevation of 441 feet and showed top of the Woodbine sand at around 4381 feet. Robbins 1 is slightly higher structurally than Cobb 1, its indirect offset.

Edgar C. Johnson et al's Green 1, about 3 miles northeast of nearest townlot production, has an elevation of 366 feet, with top of the Woodbine sand at 4773 feet. This well apparently is 365 feet lower than Cobb 1. Green 1 failed to produce oil in the Woodbine sand on a recent test, and provides a control point on production trends.

Depth of Hawkins wells will range from 4600 to 4900 feet, with top of the Woodbine sand about 300 feet higher than this depth range.

Of the 115 feet of Woodbine sand logged electrically below the casing in Jackson and Rotondi's Cobb 1, Hawkins townsite producer, about 85 feet was oil sand and the remainder shale. Hollingsworth Drilling Company's Robbins

Proximity of the Hawkins field to various East Texas landmarks is shown by this general map. The East Texas field nearby produces a radically different oil.



Acme Map Company, Tyler, Texas

1, the second townlot producer located 1500 feet from Cobb 1, showed less than 100 feet of oil sand in 400 feet of Woodbine sand penetrated, the entire top portion having been broken ashy sands and shale. Correlation of the two wells is difficult because of the limited amount of Woodbine sand included in the electrical log in Cobb 1.

Drilling

Drilling requirements at Hawkins are easily met with equipment usually used in developing 5000-foot fields. A well may be drilled with 9 to 11 bits, of which 4 are rock bits and the remainder fishtail. It is possible to complete a well with fishtail bits above the Woodbine sand, but use of a few rock bits reduces drilling time considerably. The average drilling cost will be around $15,000. The standard casing program will include 1600 feet of surface casing and a 5½-inch oil string, but some modification in the latter string may be expected.

Use of a good mud is a requirement while drilling through the Sub-Clarksville sand, the gas-bearing formation in the Eagle Ford shale immediately above the Woodbine. Bobby Manziel's Lee Bell 1, for some time out of control with a heavy flow of gas and mud, blew out from 4363 feet in the Sub-Clarksville sand. This gas is expected to be present over most of the structure, and while offering a drilling hazard, it may prove useful in future repressuring operations in the deeper Woodbine sand.

The Hawkins discovery has precipitated a leasing boom of major proportions. Lease prices immediately jumped to record levels after completion of the first townsite producer, although the Manziel discovery well first touched off the play. Well located royalty is bringing from $1000 to $1500 per acre for an eighth, and as much as $100 per acre is being paid for strictly outside acreage. Small townlots are being sold at $6000 to $12,000, including oil rights, less an eighth royalty, despite probable drilling restrictions and the likelihood of a conservative acreage-well development basis for the entire field.

The Hawkins structure, as outlined by surface, subsurface and geophysical data, exceeds 10,000 acres in area, but definite producing trends have not been established. The structure has received consideration for more than six years, Humble Oil & Refining Company having acquired most of the acreage in the area. The wide scattering of acreage held by independents will force considerable offset drilling in several sections of the field.

The original surface geological work was followed by geophysical and coring operations, but the geophysical data obtained was not convincing. Geophysical work now is under way on the structure. The district is hilly, and differences of 30 and 40 feet in elevation are common in short distances.

The field is served by Highway 80 and the main line of the Texas and Pacific Railway. The entire field is well drained, and the soil is sandy and suitable for building roads at low cost. Townlot activity will cover only a small part of the field at best, although all of the hamlet of Hawkins should be productive. Drilling in the town limits probably will be tempered by pooling of lots to obtain drilling permits. The acreage-well ratio also will work toward controlling operations on very small tracts.

Pipe Line Outlets Available

Movement of Hawkins crude oil will be a simple matter. Humble Oil & Refining Company's 8-inch, Van-Gladewater pipe line passes 6 miles south of the Hawkins townsite, and a 6-inch line will be built from the field to this trunk line. The Van-Gladewater line has not been in use for some time and is readily available for handling Hawkins crude on a large scale. Shipment toward either Gladewater or Van will be possible, although the oil probably will be routed via Gladewater for dispatching as needed. Movement by railroad tank cars will involve limited loading expense, since a main line railroad passes through the field.

A gravity gathering system will be maintained by Humble Oil & Refining Company, with 4-, 6-, and 8-inch field lines to take advantage of the topography. The field station site is located south of the Hawkins townsite and at an elevation considerably less than the average for the field.

Humble Oil & Refining Company recently posted a price of 78 cents per barrel for Hawkins crude at the well. If the oil is delivered by truck to the main pump station, an additional five cents per barrel will be paid.

Evidence submitted at a Texas Railroad Commission hearing January 20 indicated that the Hawkins discovery would have a stimulating effect on East Texas developments during the next two years. The new field was recognized as a large Woodbine discovery and a valuable heavy-oil reserve. Technical testimony at the hearing revealed a structural condition favorable for producing oil in large volume over a long period.

Belief was expressed that the maximum thickness of the Woodbine sand would be 700 feet, of which about 100 feet on top should normally carry gas, and up to 400 feet should carry oil with shale

EAST TEXAS CRETACEOUS SUCCESSION*

Navarro	**Arkadelphia clay 350 feet**		
	Nacatoch Sand	**100 feet sand** **300 feet sandy shale**	
Taylor	**Upper Taylor Shale (500 feet max.)**	**Saratoga Chalk** **Marlbrook Marl**	**In NE part of area only**
	Pecan Gap chalk 250-400 feet (approx. Annona of South Arkansas)		
	Lower Taylor Shale 700-800 feet	**Ozan Shale** **Buckrange Sand** **Brownstown Shale**	
Austin Chalk (580 feet max.)	**Blossom Sand 150 feet** **Bonham Clay 300 feet** **Ector Chalk 30-100 feet**		**Tokio of South Arkansas and North Louisiana**
Eagle Ford Shale (0-650 feet)	**Black Shale with bentonitic streaks in part speckled. Thins over structures and pinches out up west flank of Sabine Uplift. The Sub-Clarksville Sand, 0-35 feet below top and up to 75 feet in thickness, is source of heavy gas flow at Hawkins.**		
Woodbine Sand (0-700 feet)	**Ashy sands, red beds and lignitic, sandy shales.**		

* Applies to general area and not necessarily to Hawkins field.

streaks. The shale breaks probably will be large lenses that will not generally prevent either the vertical or horizontal flow of oil in the main producing formation. Recoverable oil was placed at about 750 barrels per acre-foot of oil sand.

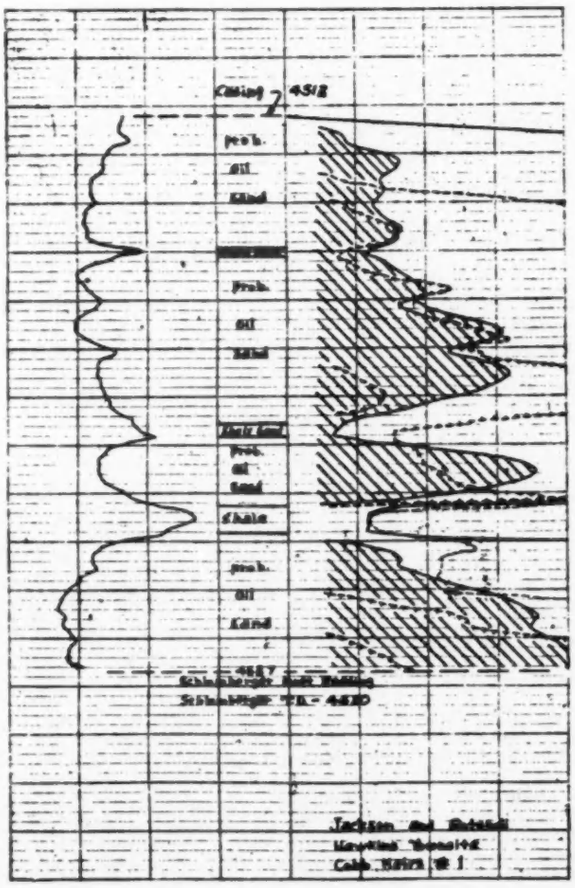
Formation pressures are normal for the depth, being around 2200 pounds at 4600 feet. Temperature at the same depth is about 175° F.

The Texas Railroad Commission entered an order effective January 24, providing for 20-acre spacing in the field. Wells will be drilled 467 feet from lease lines and 933 feet apart. The field will be prorated on a well-acreage basis, with each factor counting 50 percent. The order allows as much as 30 acres to the final well on a lease.

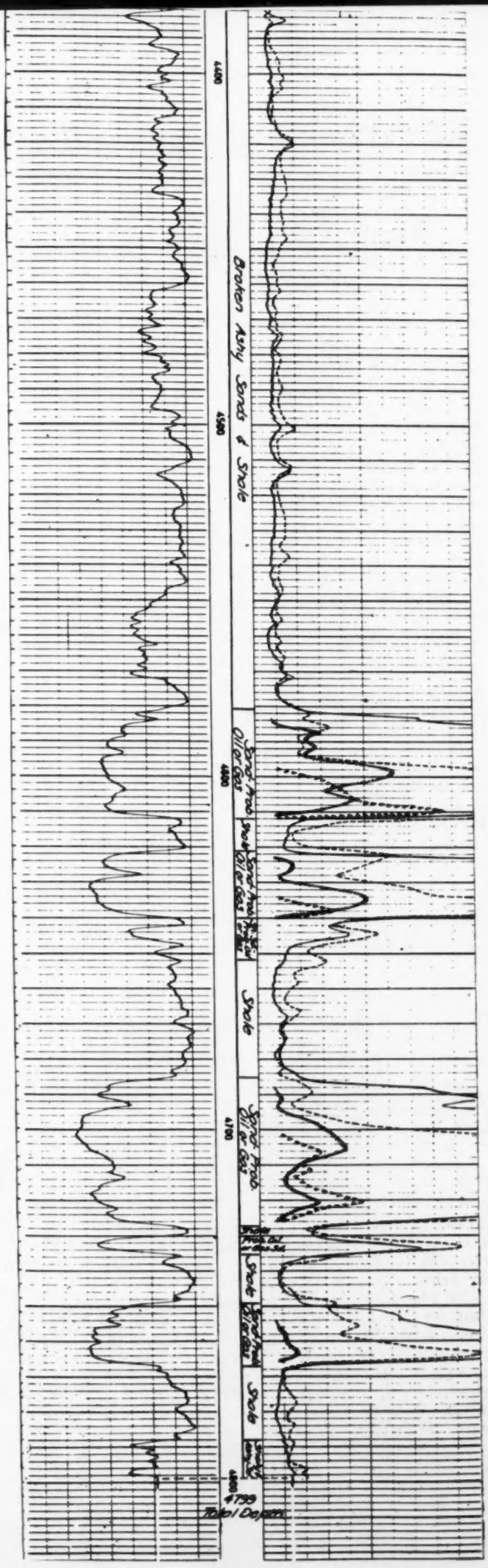
Under the latest order a 1600-foot surface string is required, and this casing must be set 50 feet in the Midway formation. The oil string must be cemented 1200 feet above the shoe.

Townlot drilling will be permitted, but on a modified scale. The intensive development at Kilgore in the East Texas field will not be duplicated at Hawkins.

The electrical log of Hollingsworth Drilling Company's Robbins 1, shown right, places the saturated oil sand considerably below the top of the Woodbine, which was encountered at 4380 feet. It is difficult to correlate this well with the first townlot producer.



This electrical log of Jackson and Rotondi's Cobb 1, first Hawkins townlot producer, shows a high percentage of oil sand below the shoe of the oil string at 4512 feet and bottom of the survey at 4627 feet. Woodbine sand was topped at 4365 feet.



Seven-Year Trial Proves Gas-Injection Project Profitable

A MODIFIED type of gas repressuring is singularly successful in an application in Walters pool, northeast Cotton County, Oklahoma. Injection of gas is being used primarily to increase the ultimate recovery, the immediate objective being control of reservoir conditions through input volumes and pressures. Both water encroachment and depletion toward an uneconomic operating level are being retarded by repressuring in a manner similar to recycling. By the time the last well is plugged, the field will have produced 3000 barrels per acre in excess of the recovery anticipated without repressure control.

In order to correctly analyze this constructive and conservative gas-injection procedure as practiced in Walters pool, it is necessary to briefly look at the past history of the field. The first well was completed as a gasser in 1917. Rock pressure was 881 pounds. Oil and gas was then generally developed and the field extended to include much of townships 9 and 10 west, 1 south, and part of 10 west, 2 south. Structurally, the field is confined to the top of a low and flat dome with surface rocks Wichita and Clear Fork (Permian) and with the Priddy sand (Pennsylvanian) at 2100 to 2200 feet the first major pay formation. Production is not continuous from one section of the field to another.

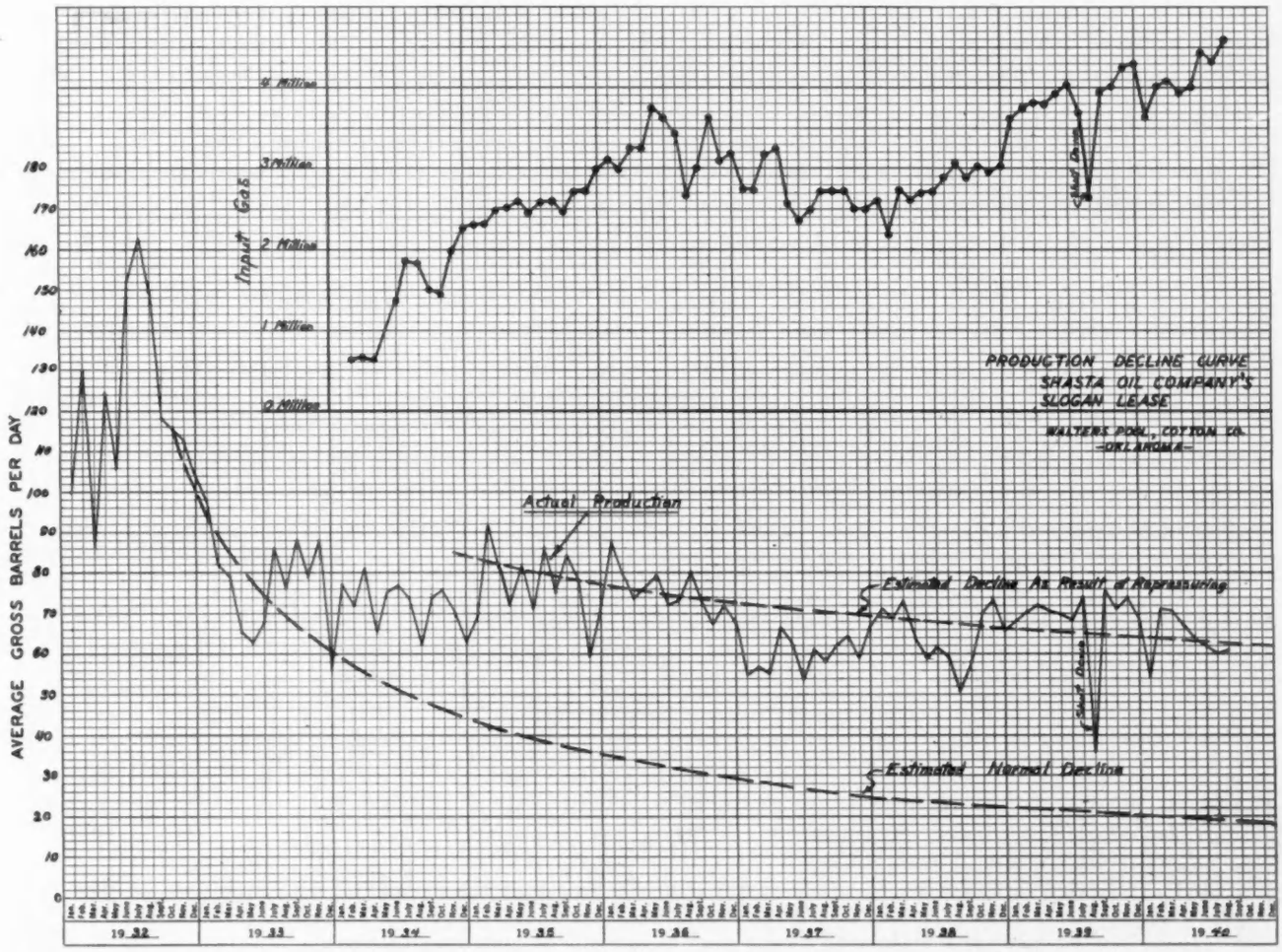
Sand at 2200 Feet

That part of the pool now being subjected to controlled repressuring was opened in 1929 and 1930 with the Priddy sand at 2200 feet being the chief producing level and the one being repressured. The operation is being conducted on a block of 500 producing acres acquired by Shasta Oil Company. The repressuring operations are supervised by Jo H. Cable, consulting petroleum engineer of Wichita Falls for Shasta Oil Company. In addition to this project, other operations by the same and other companies, are scattered through the producing area.

In 1933 the estimated ultimate recovery from the 500 acres as of discovery date was 1,910,000 barrels with normal recovery methods. The ultimate recovery with repressuring is now estimated at 3,420,000 barrels. Total production to date is 2,120,000 barrels and present daily production 400 barrels. Production to date due to repressuring and in excess of normal decline is 640,000 barrels.

When this particular block was drilled originally, the formation pressure was considerably less than normal, and at the time repressuring began in the fall of 1933, it had dropped still lower. No exact figure as to the formation pressure are now available except key-well shut-in pressures ranging from 17 to 200 pounds. Estimating the encountered pressure on the block to have been between 250 and 600 pounds when drilled in 1929, there is a considerable drop under what might have been expected. Instead of assuming this to have been characteristic of this specific area, it is more probable that the formation pressure had been lowered through the drainage of energy into adjacent developments. Nearby areas had been drilled into the same sand zone and although zones of non-commercial production made the

Shasta Oil Company's repressuring work at Walters, Oklahoma, involves use of two types of equipment on injection wells. At left is where tubing is set on packer so that gas is injected into lower part of sand, and at left the gas is injected directly into the well casing.



Typical of Shasta Oil Company's repressuring project at Walters is the compound curve of the Slogan lease. Fifteen producers are being operated as well as a compressor installation. The graph shows production before and following injection of gas, volumes of gas returned to the formation, estimated decline that would have resulted from routine production methods, and the decline curve that is resulting through the agency of injection that is assuring a high ultimate recovery.

play somewhat spotted, the sand bodies are sufficiently continuous to unify the Priddy into a common reservoir.

Sand 24 Feet Thick and Porous

Priddy sand is 24 feet thick on the project, coarse and somewhat loose. It is characteristically porous although not uniformly so. Some lime and shale are encountered locally. Over part of the project a gas zone is separated from the oil sand by a 4-foot thickness of shale. To keep the injected gas from circulating freely through this gas zone, some of the key wells have the tubing packed off between the oil and gas strata.

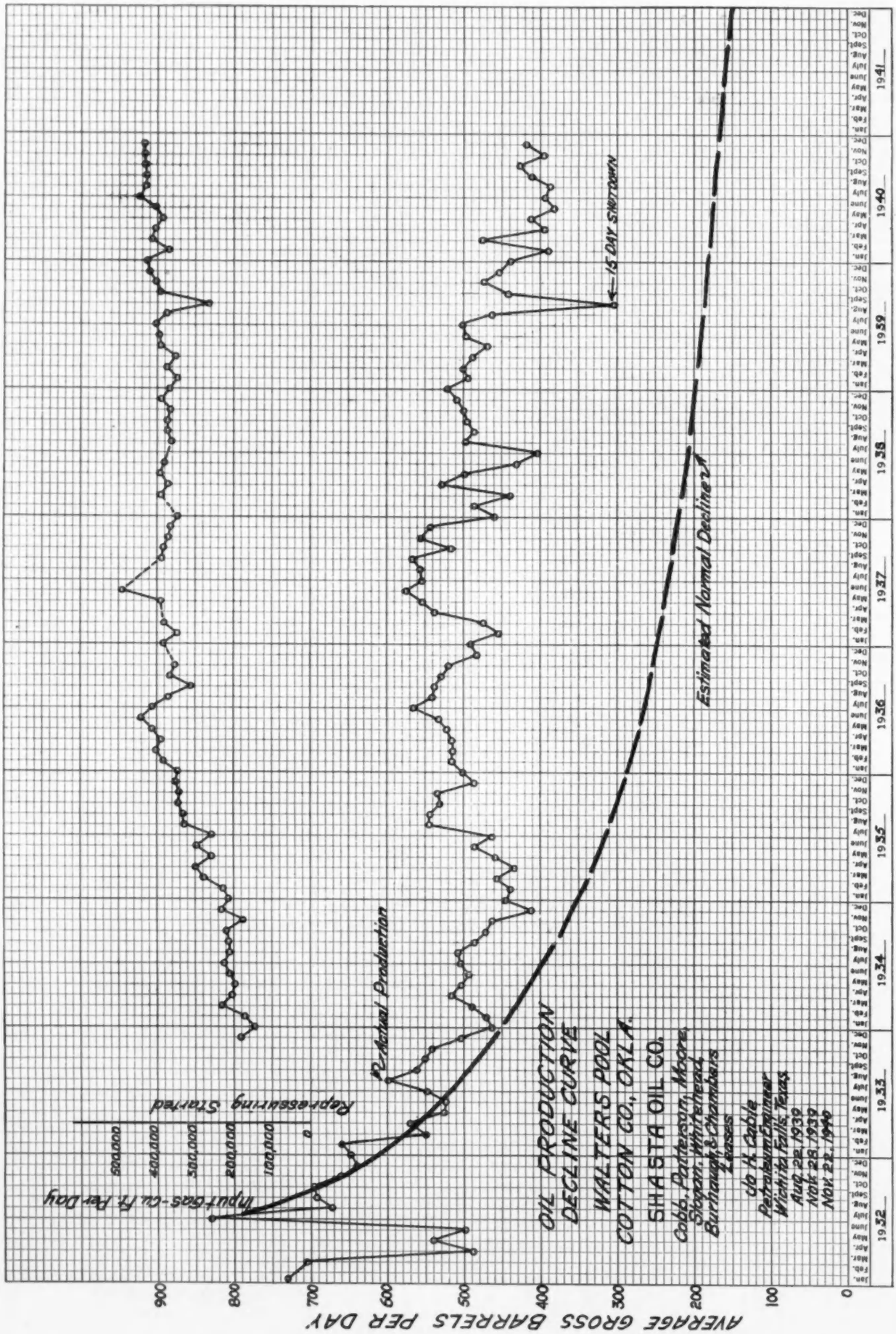
The decision to repressure resulted from two individual factors. In the first place, water became a threat as early as 1932. While most of the water was coming in from the edges due to decreased formation pressures, there was some water in the pay formation at different levels, to indicate a complete separation of water and oil had doubtfully been established in the reservoir. This water could not be made subject to control, but the migration from the edges of the dome could be held back, or at least allowed to encroach only as the oil was produced, by suitable pressure control. The second factor was the apparent certainty that with normal production and subsequent additional lowering of the already low formation pressure, reservoir pressure differentials would result in swift encroachment of edge water that would trap large volumes of oil in the loose sand body.

Operators resorted to a control of the reservoir that would not require the expensive operations of returning the formation to its original 880 pounds pressure but selected instead injection of sufficient gas to stabilize the reservoir condition then present. By proper control through this means, edge water could be held back or be allowed to migrate into the block only as the formation became depleted. This constructive method would also provide a high ultimate recovery through sustaining reservoir energy during production.

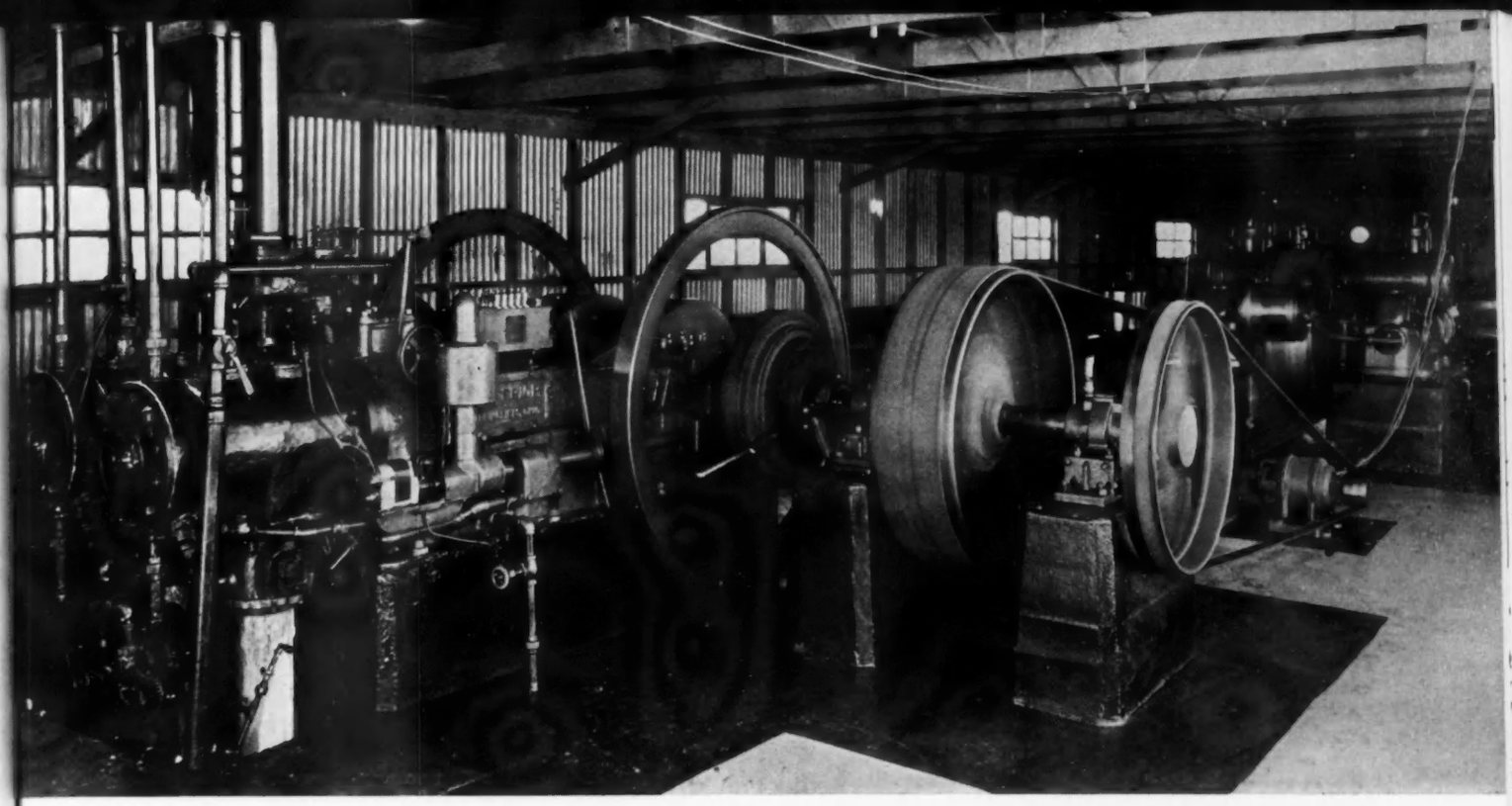
Injection Wells

As most of the wells had been drilled on a 10-acre plan, the block could not be developed with gas injection as a prime influence. In view of the desired control over formation water, no strict adherence to a uniform spacing for injection wells was made. Instead, the injection wells, some old producers and some new wells for that purpose, were selected on the basis of their adequacy. This was judged upon the degree of encroachment in a particular area, the oil present, reservoir energy locally available, water/oil ratio and the thickness of the pay at the spot. On such basis a plat would indicate somewhat haphazard spotting of the injection wells and not the more practical operating balance obtained by adjusting their location to meet reservoir conditions.

The program of pressure main-



Shasta Oil Company's entire project, about 500 acres, is detailed in this graph, expressing production, natural gas input, normal recovery and recoveries to be expected as a result of the injection program.



Interior of central power on Shasta Oil Company's Burnaugh lease at Walters. The engine drives a 2-stage compressor, electric light unit and the band wheel.

tenance was applied gradually as the need for additional control became apparent. Development today includes 19 input wells and 52 producers, or a density of about 1 well per 7 acres, eliminating a few wells that have been plugged.

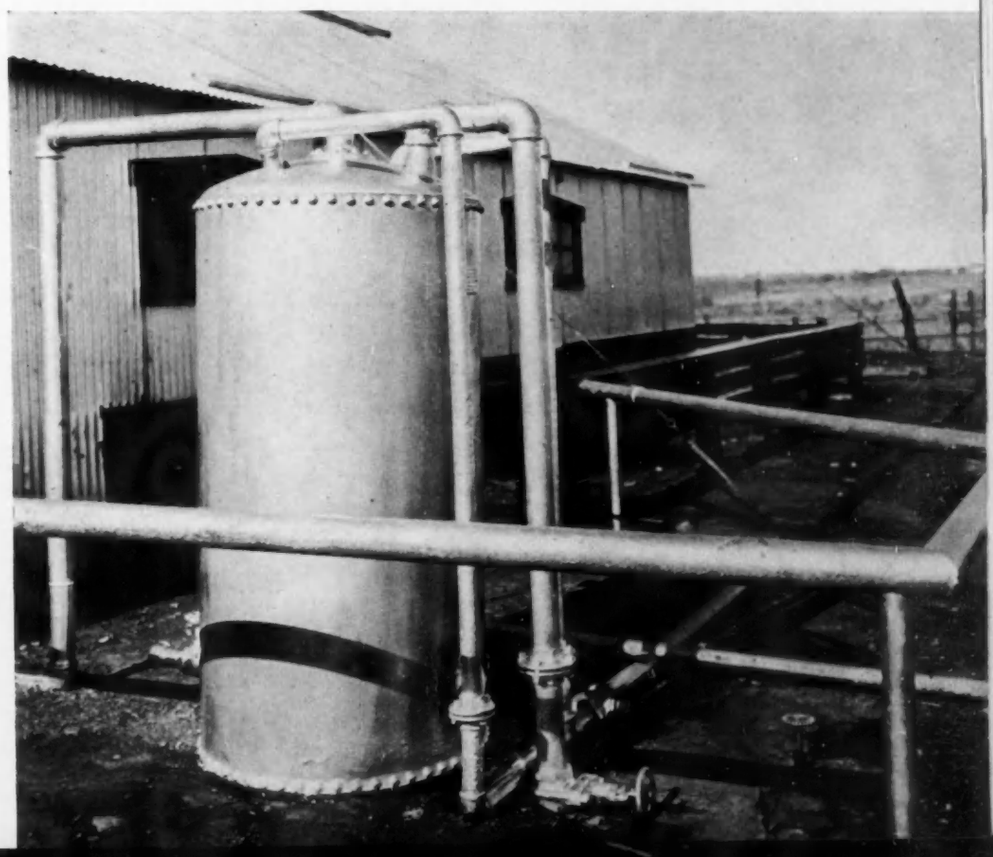
Since inception of the program, natural gas had been the pressure medium. No air or mix has been injected. Gravity of the gas has been balanced at .70 with volumes produced showing considerable gasoline content. No particular attempt is made to dry the gas either of gasoline or water although drips in the discharge lines of the compressors knock out much of the moisture. Equipment to handle the gas, both from and to the wells, is necessarily limited by the economic limitations governing the entire project.

During the first few years of repressuring, the operation obtained all its necessary gas from the leases' oil producers. Within the past few years, due to normal loss, dispersement within the formation, fuel requirements and losses through entrainment, some make-up gas has been purchased from Lone Star Gas Company.

Gas is produced along with the oil at little or no pressure above atmosphere. In few cases is there any back-pressure held, and this only when production and reservoir action indicates a need to increase the gas volume in a local portion of the operation. When this is apparent, produced gas volumes are decreased by holding pressure against the producers so that the gas is spread more widely through the sand body. Channel action has not caused serious difficulty in any instance although where a channel was thought to be in the process of formation, back pressure on the producers has been found sufficiently curative to disrupt the forming channel. A chief reason for the freedom from dangerous channel action is in the pressure applied and consistent periodic checking of gas-oil ratios.

Gas leaves the compressors at from 18 to 240 pounds. A 10-percent drop occurs between the compressors and the input wells so that the differential between the injection spot and the producing face of the pay is in no case over 200 pounds. This differential is spread through the distance between injection and producing wells so that the returned energy is distributed widely and in any one spot is doubtfully sufficient to create a serious channel in spite of the porous nature of the formation.

Injection-well manifolds and



Scrubber on gas line immediately ahead of compressor on the Burnaugh lease.

Shasta Oil Company's entire project, about 500 acres, is detailed in this graph, expressing production, normal recovery and recoveries to be expected as a result of the injection program.

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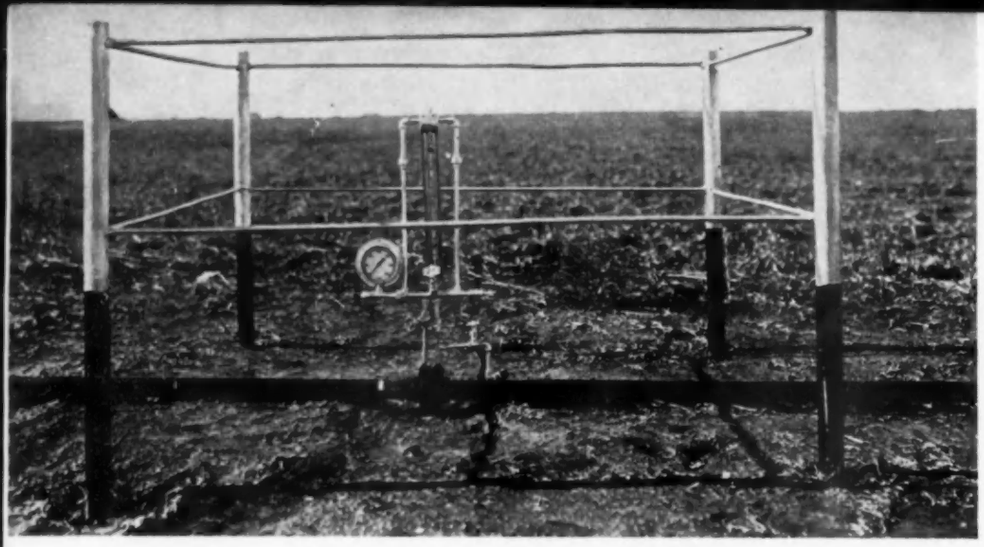


Pressure gauge and mercury manometer on injection-well line. When not in use gauge and manometer are by-passed.

heads are simple, with a swedge nipple over a 6⅝-inch casing. All gas is measured into the injection wells through an orifice, orifice flange connections, bypass and mercury manometer. While this means does not allow 24-hour recording of the input volumes and pressures, it does allow a daily check and as the operation is fairly constant, the relative input volumes would also be constant. Where a certain well becomes a problem, the gas engineer connects in his manometer for constant observation. The project is now injecting approximately 500,000 cubic feet of gas daily.

Instead of having a central plant on the 500-acre block through which all gas is handled, operating costs have been held down by having four compressors driving off the same number of powers used to lift the production. Each compressor, one single-stage and two 2-stage, have their own system of suction and discharge lines. Three and 2-inch gas lines from the producers feed 4-inch main suction lines to the compressors. Discharge lines are all 2-inch, buried. Effort is made to scrub the incoming gas but not cool the discharge. However, drips have been found sufficient to care for most of the fluid condensate. Some trouble is experienced with freezing of lines in cold months but so far the trouble has not been excessive chiefly because of the low pressures used and the short distance of transportation, limiting the temperature drop.

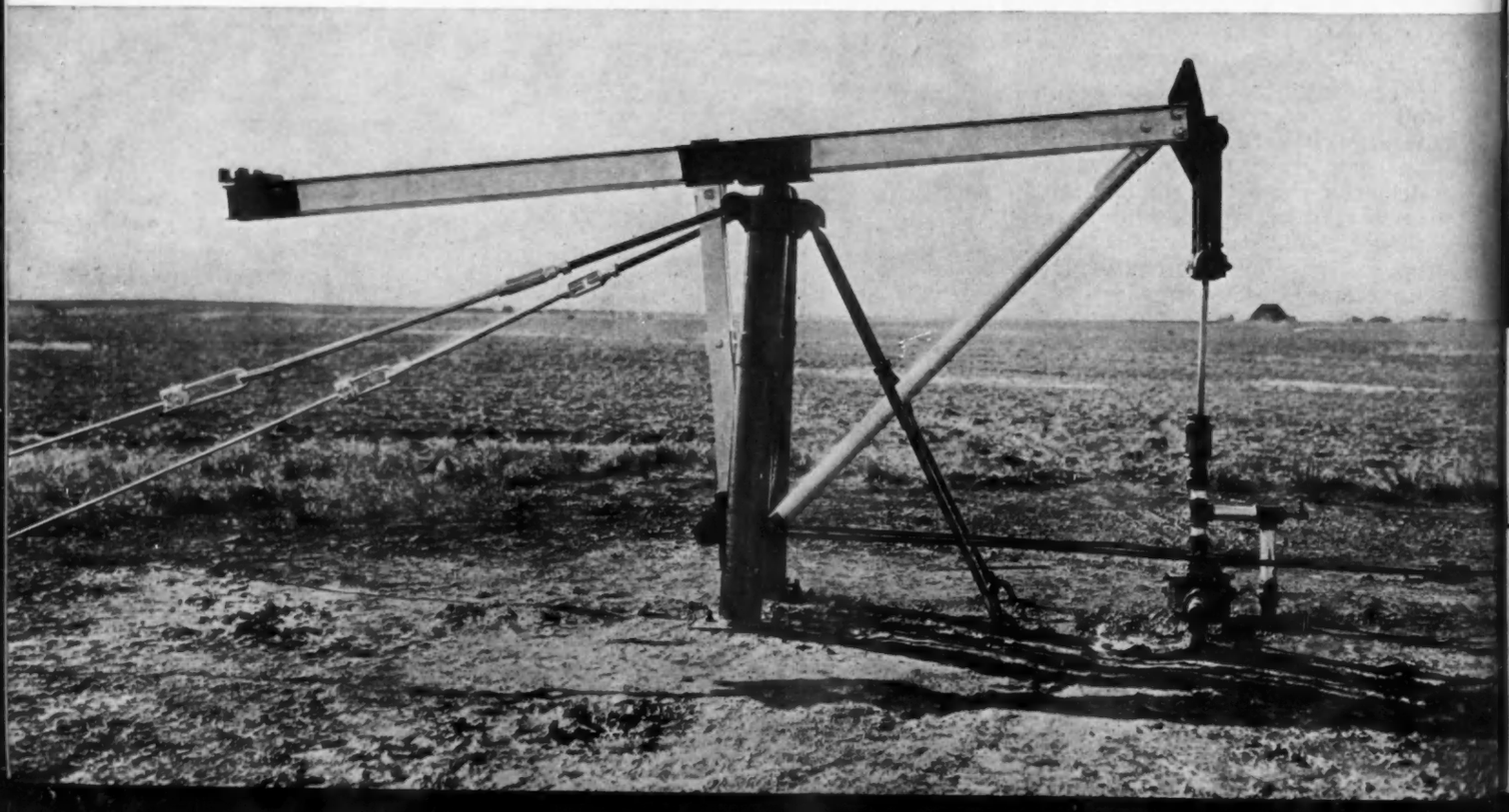
All production is by rod line and jack except for a few outlying unit pumpers. For the most part, wells are equipped with a common working barrel but in a few cases insert pumps are in use. Gas/oil ratios vary from a minimum of 750-1 to 2000-1 with an average near 1000-1.

Gravity Increased

Each lease in the operation has its individual lease storage of six tanks. The fluid passes from the wells into a water knockout, then to a heater, thermostat controlled, with treating chemicals entering the line on the way. The chemicals are mechanically introduced by a force-feed lubricator driven by a connection to a rod line. Through the heater the fluid passes into the insulated gun barrel where complete and final separation is obtained. The oil is dark green, between 34.5° and 35.5° API gravity, corrected. At the start of the repressuring operation in 1933 the gravity of the production was 33.5° to 34°, showing the increase obtained in the oil gravity through the use of natural wet gas as a recycling agent.

The operation has been significantly free from producer trouble. All wells were squibbed lightly prior to completion, and although the sand is somewhat loose, it has not seriously cut cups or equipment. Some wells have shown sand and when they do they are pulled and a sand pump run. The formation water has not deposited much gyp to retard flow into the wells.

Adequacy of the modified repressuring program is apparent from the accompanying curve. Normal production methods would have resulted in the present daily production of approximately 18 barrels on a typical 80-acre part of the entire project. Instead, by the use of controlled injection and reservoir change, the present daily production on the same lease is about 60 barrels. The ultimate recovery will be proportionately greater.



Type of jack used on wells at Walters.

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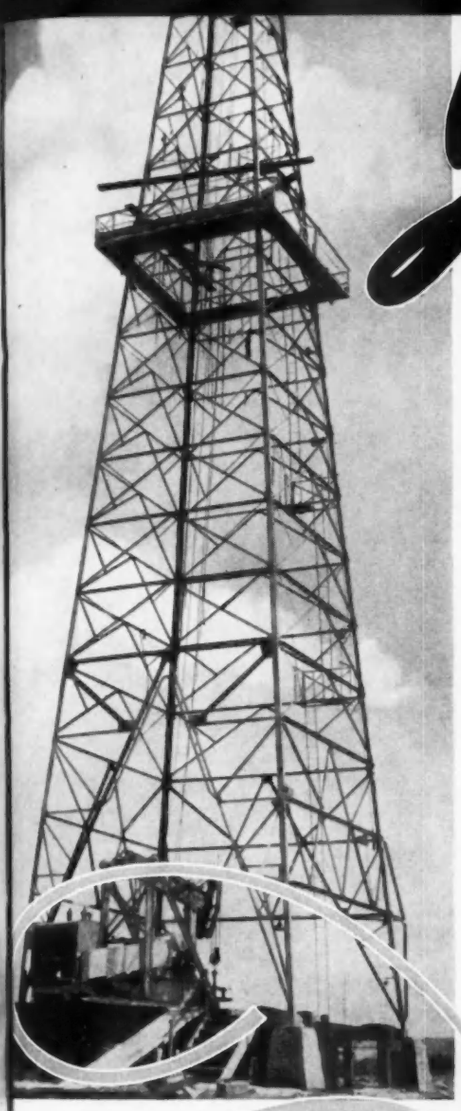
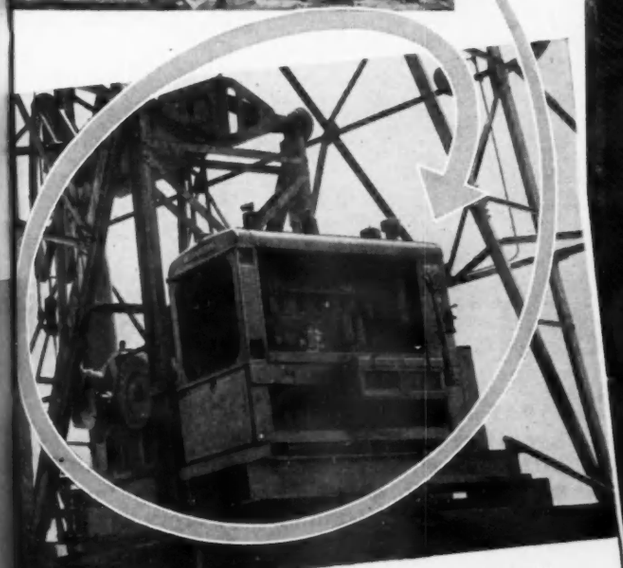
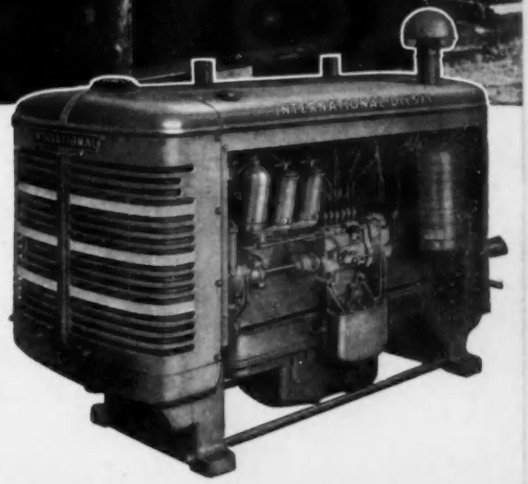




'WAY DOWN . . . 8,540 FEET!

This 6-cylinder International PA-100 Power Unit (110 max. h.p.) owned by Pettijohn Drilling Co., Los Angeles, is pumping 200 barrels a day of 32.5 gravity oil with a 1½-inch pump at 8,540 feet. The well, located at Imperial and Western Blvds., Los Angeles, was reported to be the deepest pumped well in the world at the time these pictures were taken.



Above: Here's the compact, 4-cylinder International U-2 Power Unit operating on natural gas. This engine develops 22 h.p. (on gasoline) at 1,800 r.p.m. **Right:** International UD-18 Diesel. Develops 100 h.p. at 1,400 r.p.m.

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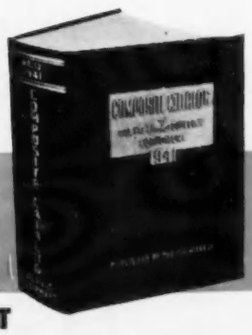

the COMPOSITE CATALOG

OF OIL FIELD AND PIPE LINE EQUIPMENT

Boston Gasoline Line Built With Record Speed

Operation of the first pipe line to serve the Boston, Massachusetts market started operations January 23. The new line, which will transport only finished petroleum products, links the 45,000,000-gallon storage capacity of Shell Oil Company's Fall River ocean terminal with a newly erected bulk plant at Waltham, located on the outskirts of Boston. The line is capable of supplying in excess of 420,000 gallons per day, and is regarded as a highly important part of the New England defense system. In the event of a national emergency, a large portion of Boston's petroleum requirements can be currently supplied by the line, relieving rail, water and highway transportation facilities for the movement of other supplies into and out of the city, the company points out.

Beginning at Fall River, the pipe line runs roughly north for 59 miles to Waltham where it discharges into 5,000,000 gallons storage. The right-of-way crosses over 400 separate properties and extends through the towns of Fall River, Freetown, Berkley, Taunton, Norton, Mansfield, Foxboro, Medfield, Walpole, Sherborn, Natick, Wayland, Weston and Waltham.

Work on the line, which was built by local labor under the direction of Shell Pipe Line Company engineers, began in the fall and proceeded at record speed to insure completion before severe weather set in. At peak periods, over 600 men were employed in the various phases of laying the line, the construction contract for which was held by a New England company.

Rough terrain, rock formations and swamplands encountered along the right of way made the line, mile for mile, one of the most difficult yet constructed in this country, according to the engineers in charge. Between 10 and 15 miles of the line had to be ditched and covered by hand. Three rivers, the Assonet, with a width of 613 feet and a maximum depth of 21 feet at

Lowering welded pipe into the trench on Shell Oil Company's gasoline line into the metropolitan area of Boston. Work was rushed to avoid really severe weather.

Steam dredge digging trench in the bed of Taunton River for Shell Oil Company's gasoline line between Fall River and Waltham, in Massachusetts. Pending river improvements required that pipe be put eight to ten feet under river bed.

the point of crossing; the Taunton, which is 194 feet wide and 10 feet deep at the crossing site, and the Charles, which was crossed at a location where it is 118 feet wide and is relatively shallow, were traversed. The crossing of the first two involved the use of steam dredges.

A pending channel deepening project made it necessary to lay the line 18 feet below mean low water in the Taunton River, resulting in the pipe being buried from 8 to 10 feet below the present river bed. Extra heavy river pipe was used for all river crossings. Because of salt water in the Assonet and Taunton Rivers the pipe was coated with enamel and wrapped with asphalt impregnated felt for additional protection.

The minimum underground depth for the line at any point is 3 feet and the maximum depth is 11 feet. Under all railroads and under most highways and roads, the line was laid by a tunneling operation so that the flow of traffic was undisturbed.

The pipe used in the line has an outside diameter of 6⅝ inches and ¼ inch walls and is made of mild steel. All joints were tested at the mill and electric arc welded during the construction of the line. The welding was done by the continuous or "stove pipe" method with each 40-foot section being welded onto the line as a whole, rather than 3 or 4 sections being joined together and then added to the line.

The Fall River pumping station, the only one on the line, is 6 feet above sea level while the Waltham plant has an elevation of 65 feet. A duplex reciprocating pump, driven by a diesel motor, will operate at approximately 900 pounds pressure to move products between the two points.

At Waltham, work is being rushed on the construction of a 210 by 76 foot brick and masonry combination office and garage building. Private offices for H. B. Wyrick, pipe line superintendent; Harry M. Cox, Waltham area manager; the terminal foreman, area sales office, depot office and 14 garage bays, each capable of holding two large tank trucks, are to be included in the building. Plans call for the erection of additional new buildings in the near future. Special high-speed pumps were installed in the loading racks for the rapid loading of railway tank cars and large motor units.

The new Waltham plant, which will serve Shell's dealer's and distributors in the Boston area, will supplement the company's present water terminal at Chelsa. It is probable that the Chelsa terminal will be continued for the storage of heavy oils and products not adaptable to pipe line handling.

William H. Shelley and Carl W. Marquis, both of the Shell Pipe Line Company, supervised the construction of the line. Lane Construction Company of Meriden, Connecticut, was the contractor. Welding was done by C. M. Flag Company, Meriden, and the river crossings by Elliott & Watrous, of Providence, Rhode Island.

Welding on line was done by continuous or "stove pipe" method, adding each 40-foot joint, rather than joining sections of three or four joints at a time.

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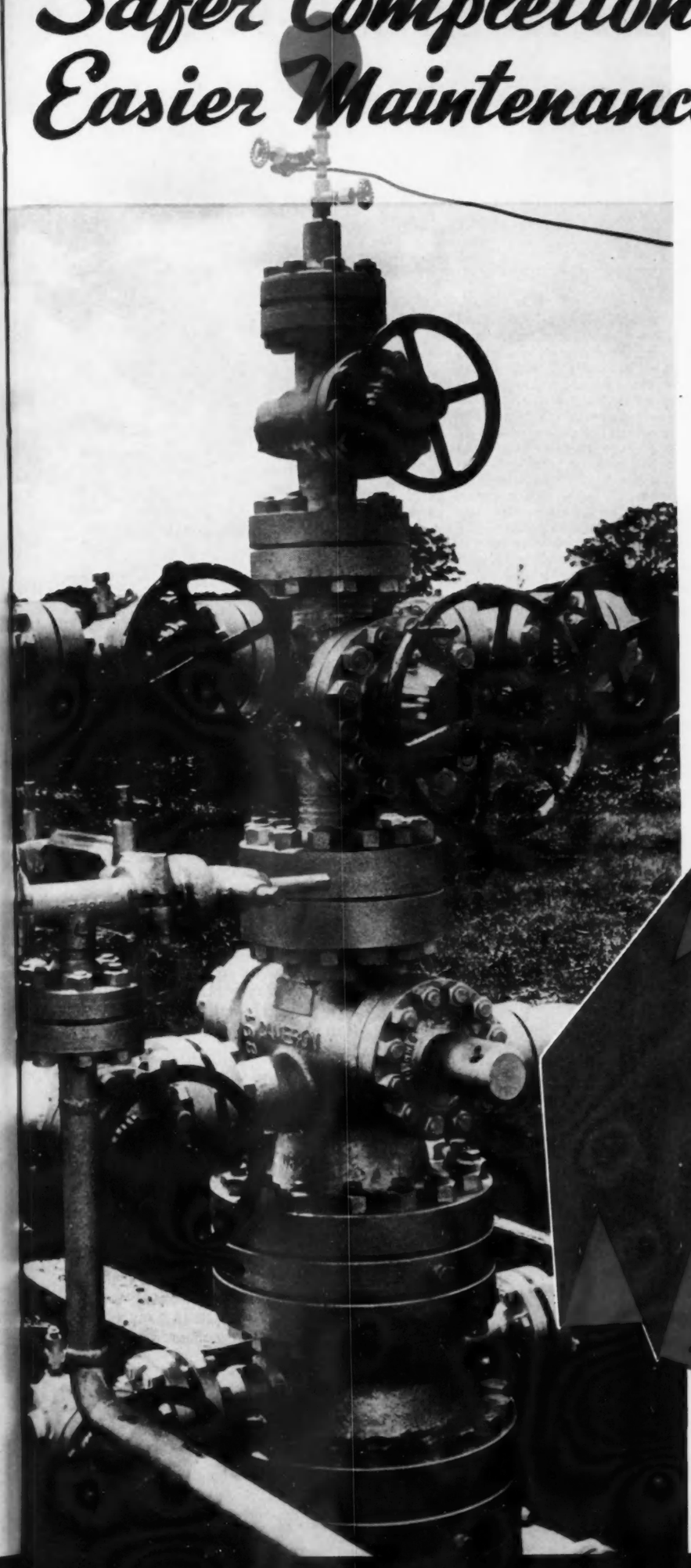

Cameron Type "LD" Ram Type Tubing Control Head Serves Four-fold Purpose, Yet Costs Little, If Any, More Than Conventional "Set Screw" Type Tubing Heads.

The Cameron Type "LD" Ram Type Tubing Control Head presents an unparalleled achievement in the field of completion equipment.

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It provides four proven methods of suspending and sealing the tubing string: (1) Ram suspension on a hanger nipple as illustrated in the cross-section drawing below; (2) Slip suspension in the top flange of the head, utilizing the rams as a master gate below the outlets to seal the annular space between tubing and oil string; (3) Boll-weevil suspension from the top flange of the head; (4) Suspension from a threaded hanger flange which bolts down on top of the head.

It is extremely practical on any reworking subsequent to the original completion of the well. When used in conjunction with a second Cameron, ram type control unit, tubing may be raised or lowered, or pulled from the well under pressure without killing.

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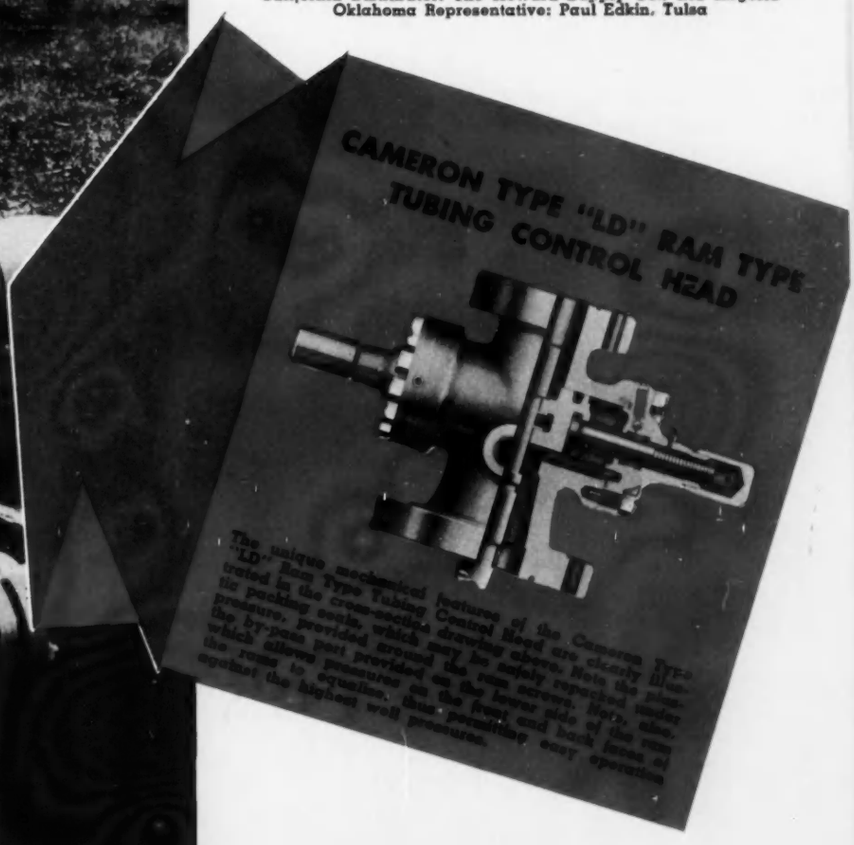

Improvement in Plastering Properties of Muds

By H. T. BYCK and J. W. FREELAND
Shell Development Company, Emeryville, California

An inexpensive and practical method has been found in the use of relatively low concentrations of Irish moss or sodium alginate to improve the plastering properties of aqueous drilling muds, and in particular to prevent the impairment of plastering properties by salt. This same treatment makes feasible the use of sea water in preparing muds, and permits the preparation of high salt content (saturated brine) muds with excellent plastering properties for special purposes such as combatting heaving shale, penetrating salt domes, etc. The preparation of other special purpose muds such as straight carbonate muds is facilitated.

The method has been given a successful field trial.

In the practical application of rotary drilling muds, it is general knowledge that the composition as well as the physical properties of mud undergo continuous alteration during the progress of drilling. Change in mud weight through gain or loss of solids is readily compensated for by dilution with water or by the addition of weighting agents. An increase in viscosity resulting from the increase in solids content is normally controlled with well known chemicals such as pyrophosphate or quebracho, for viscosity reduction. Plastering (filtration) properties may normally be improved by the addition of highly colloidal clays such as bentonite.

Frequently, however, increases in viscosity no longer respond to chemical treatment and the usual accompaniment of this condition is an impairment of the plastering properties which can then be improved only slightly by the use of bentonite. This condition often is due to contamination of the mud with salts from brines encountered in the well.

Salts in general flocculate the colloidal fraction of the clay of which the mud is made, and to this colloidal fraction can be ascribed the viscosity and plastering behavior of a mud. A well reflocculated mud normally exhibits a low viscosity and low water loss on filtration. The same mud, flocculated with salt, will have a high water loss; the viscosity may be high or low depending upon the specific action of the salt used, the nature of the mud, and the concentration of the salt.

It is believed that viscosity alone is a poor indication of the plastering properties of a mud, as was discussed in earlier work.[1]

Since the likelihood of contamination of the mud with salt is high, either through contact with normal brines in the well, or through actual flow of high-pressure salt water into the well during drilling and since maintenance of satisfactory plastering properties is essential to the success of the drilling operation, it is highly desirable to obtain a means for treating muds so that salt will not appreciably affect this property. The use of highly colloidal clays is not very successful since the same mechanism which destroys the plastering properties of the base mud operates to bring about a similar effect upon these added clays. Numerous supposedly salt-resistant clays are commercially available, but in general it is believed that these clays are but little better than ordinary clays.

This same problem of producing a rotary mud which is inactive against salt arises in several other connections in addition to combatting the normal contamination such as occurs in drilling. For example, it occasionally is necessary, through lack of fresh water, to use salt water in making up the mud. Although muds of satisfactory viscosity and density have been prepared with sea water, the plastering properties of these muds are usually greatly inferior to fresh-water muds.

Similarly in certain special drilling problems it is desirable to use nearly saturated salt muds; for example, to prevent dissolution of the formation when penetrating salt domes, or to minimize free water when penetrating heaving shale.

The problem therefore is to treat the mud in such a way that the clay colloid is not flocculated by salts, or to add a material which in small quantities is capable of insuring adequate plastering properties even though the clay colloids are flocculated.

A large number of gelatinous or mucilaginous colloids have been examined of which only a few showed promise. Of the promising materials, Irish moss and sodium alginate were outstanding. They have the advantage of being readily available at relatively low cost, and (as will be shown in subsequent portions of this paper) at low addition concentrations they preserve the plastering properties of muds over the entire range of salt contamination or content.

It is believed that the use of these materials in the field will appreciably reduce the expense and delay arising from the impairment of plastering properties by salt contamination, and will make possible the effective use of various special muds.

Experimental Results and Discussion

Description of Materials

Sodium alginate is derived from certain seaweeds, especially Laminaria, by digestion ordinarily with hot dilute sodium carbonate. A salt of alginic acid ($C_{76}H_{80}O_{22}N_2$), it is soluble in hot or cold water yielding a highly viscous gelatinous liquid from which insoluble alginic acid or calcium alginate is precipitated by addition of mineral acids or calcium salts respectively. It has wide industrial application in a variety of fields from the stabiliza-

[1] H. T. Byck, "Effect on Temperature on Viscosity and Plastering Properties of Drill-Muds," A.I.M.M.E. T.P. No. 1116, Petroleum Technology, Nov. 1939.

HUSKY TOOLS for the minutes that count

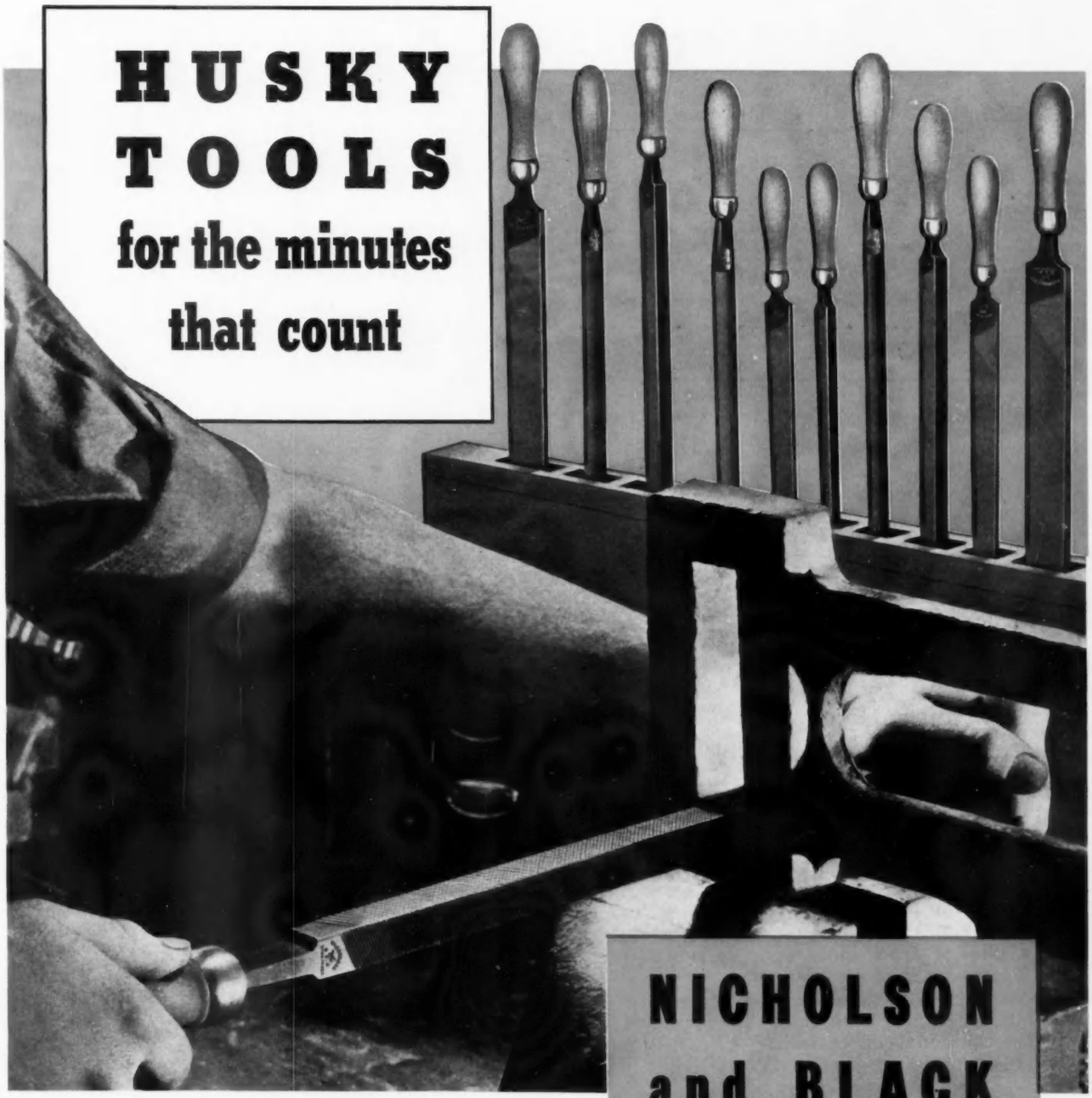

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TABLE 1
Effect of Concentration of Protective Agents on Plastering and Viscosity
(79-lb. Base Mud—Quebracho Soda Treated)

Added Colloid	Percentage Added						
	0	0.10	0.25	0.40	0.58	0.60	0.75
Water loss (cc)	28.3	12.4	7.1	5.4	3.2	....	2.9
Irish Moss:							
Viscosity (cp)	5.4	10.7	21.0	35	59	....	89
Water loss (cc)	29.0	10.3	5.0	3.8	....	2.8	2.2
Sodium Alginate:							
Viscosity (cp)	5.3	10.7	21.0	35	....	59	80

Plastering Test: 45 minutes water loss, 100 lbs. pressure, Cannon Cells.

TABLE 2
Order of Addition of Protective Agent and Salt

MUD	Water Loss at End of 45 Minutes	
	Salt Added First	Protective Agent Added First
Mud + 0.54% Irish Moss	6.8 cc.	3.9 cc.

tion of ice cream to the production of water-soluble paints, polishes, and shaving cream. The varied uses to which this material has been put, have resulted in the production of a large number of grades with similar variations in price. Obviously grades of a purity required for use in foodstuffs, etc., are not required for use in drilling muds.

Irish moss (Carrageen) is the whole dried plant of a seaweed belonging to the genus Chondrus. Without further purification or concentration it can be dissolved in hot or cold water to yield a highly viscous liquid from which, however, it does not precipitate upon addition of acids or calcium salts.

Optimum Concentrations of Protective Agents

The ability of Irish moss and sodium alginate to improve plastering properties and to combat salt contamination having been established, the optimum concentration of each was determined. Increasing amounts of the treating agents up to 0.75 percent by weight of the mud were added to a 79-pound base mud chemically treated with quebracho-soda according to standard practice.

Water loss at 100 pounds mud pressure,[2] and viscosity, are presented in Table 1. In view of the large increase in viscosity and the greater cost with relatively small additional improvement in plastering at the highest concentration (0.75 percent) used, 0.6 percent has been adopted as the optimum concentration and most of the subsequent tests were made with this amount of treating agent.

[2] All plastering tests in this paper were made on Cannon Cells described in the paper by Williams and Cannon "Evaluation of Filtration Properties of Drilling Mud." Oil Weekly, June 20, 1938.

Order of Addition of Protective Agents

A few tests were made to determine whether the addition of these agents to a mud already contaminated with salt was as effectice as adding the protective agent before salt contamination took place.

It appears that best results are obtained when the protective agent is added prior to contamination although considerable recovery of the plastering properties was obtained when the mud was first contaminated with salt and then treated. A typical example is shown in Table 2.

Fermentation

The fermentation of muds containing these protective agents has been extensively investigated since it is well known that wild yeasts and bacteria rapidly attack such substances with the results that the properties which they impart to the mud are rapidly destroyed and highly disagreeable odors arise. Except in the case of muds made with natural brine, the protective agents will most likely be added to the mud prior to salt contamination. Therefore, in general, the possible protective action of salt against fermentation cannot be relied upon to preserve the mud and its protective agent.

Tests were carried out by incubating the samples for 9 days at 98.6 ± 2° F. Viscosity and water loss by filtration were determined before and after fermentation. The extent of fermentation is reflected in an increase in water loss and in most cases by a sharp decrease in viscosity resulting from the destruction of the viscosity-imparting protective agent (Table 3).

Conclusions from the observations based on the data are as follows:

1. *Unprotected* muds apparently show no fermentation although incubation produces a slight increase in water loss in untreated and pyrophosphate-treated samples. A noticeable decrease in water loss was noted after incubation of the quebracho-soda treated mud.

2. *Muds protected with Irish moss* show only a slight loss in plastering during incubation, and this loss is further decreased by treatment with pyrophosphate. On the other hand, treatment with quebracho-soda leads to a marked improvement in plastering after incuba-

TABLE 3
Fermentation of Salt Resistant Muds
(79-lb. Ventura Base Mud)

Protective Agent		Chemical Treatment		45 Minute Water Loss		Viscosity	
Irish Moss	Alginate	Queb. Soda	Pyro.	Before	After	Before	After
—	—	—	+	32.6 cc.	38.3 cc.	5.5 cp.	6.9 cp.
—	—	—	+	28.5	32.7	4.7	5.0
—	—	+	—	34.0	24.8	5.0	6.9
—	—	+	—	31.0	23.7	4.7	4.4
.3%	—	—	—	11.9	16.4	30.0	21.0
.3%	—	—	+	9.7	12.7	16.5	15.8
.3%	—	+	—	10.6	5.2	13.2	14.1
—	.3%	—	—	4.0	52.4	30.0	6.9
—	.3%	—	+	4.0	25.8	25.5	6.9
—	.3%	+	—	5.0	15.4	28.0	6.9

Fermentation after 9 days incubation at 98.6° F.

TABLE 4
Effect of Temperature on Plastering Properties of Protected Mud Without Salt

MUD	Water Loss at End of 45 Minutes	
	70° F.	200° F.
76.5 lb. base mud alone	41.2 cc.	>90 cc.
Same +0.54% protective agent	11.3	15.7
% reduction in water loss due to protective agent	72.5%	>82.5%

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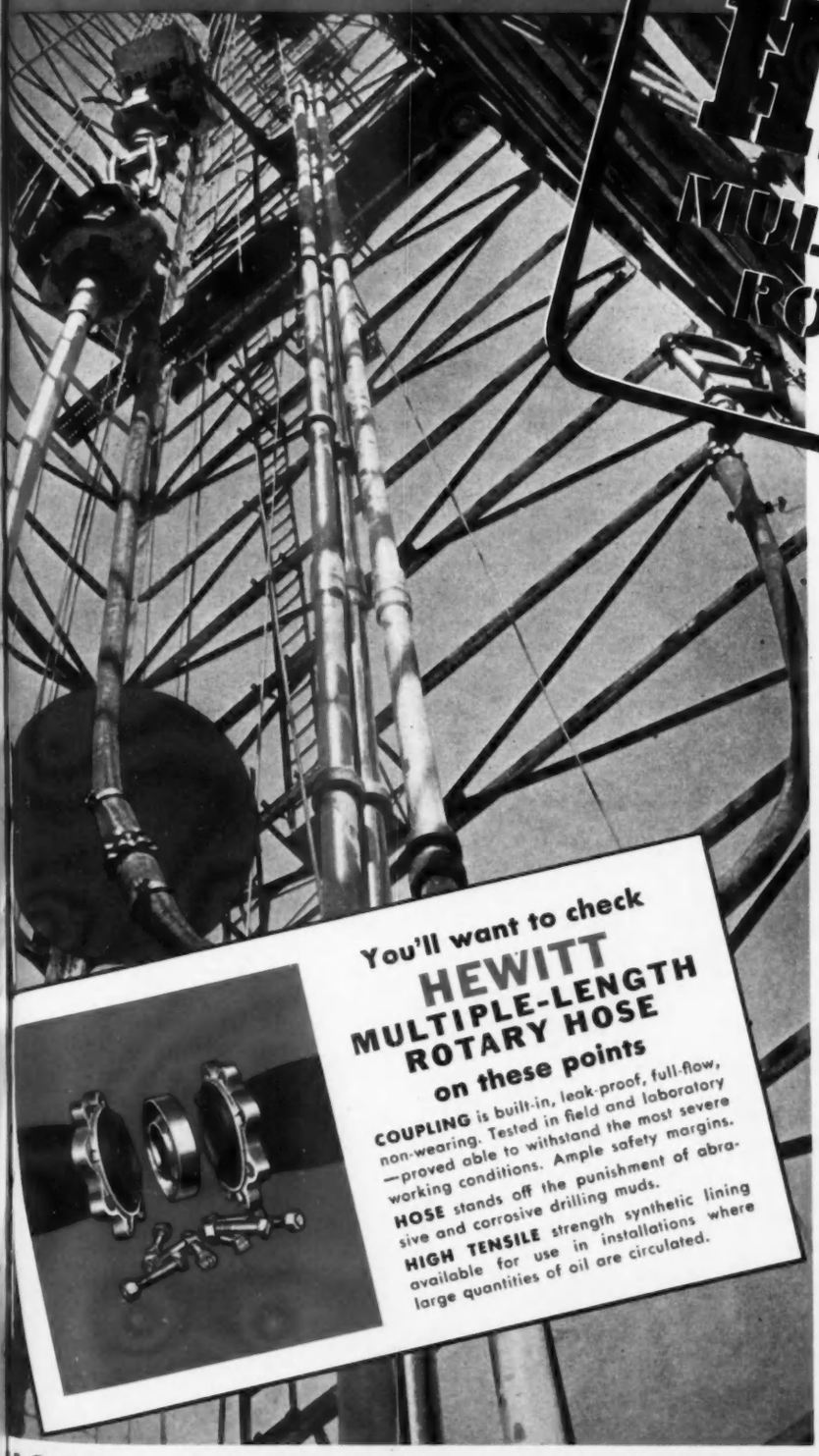

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TABLE 5

Effect of Temperature on Protected Muds Containing Salt

% added salt	0.0		0.1		0.2		0.5		1.0		2.0		5.0		10.0		90*	
Protective Agent Temp.	70°	185°	70°	185°	70°	185°	70°	185°	70°	185°	70°	185°	70°	185°	70°	185°	70°	185°
79 Lb. Mud Alone:																		
Water loss (cc.)	20.5	31.5	26.5	.....	.....	.....	22.5	.....	23.7	.....	27.7	.....	32.5	63.0	35.2	.....	35.9	70.2
Viscosity (cp)	6.1	2.8	6.9	.....	.....	.....	8.8	.....	10.7	.....	12.5	.....	14.3	7.7	17.3	.....	28.0	16.9
Base Mud + 0.6% Irish Moss:																		
Water loss (cc.)	3.4	6.6	3.7	.....	.....	.....	4.0	9.9	4.3	.....	4.6	.....	4.8	11.6	5.6	10.5	5.6	9.4
Viscosity (cp)	59	21.8	62	.....	.....	.....	68	23.0	70	.....	83	.....	85	30	105	37	107	50
Base Mud + 0.6% Alginate:																		
Water loss (cc.)	2.8	6.8	2.9	.....	2.8	.....	3.1	6.0	3.2	.....	3.3	.....	3.5	9.3	4.0	9.9	10.1	18.4
Viscosity (cp)	50	16.9	53	.....	56	.....	58	21.4	64	.....	65	.....	73	21.4	86	25.0	101	32

Water loss after 45 minutes at 100 lbs. pressure on Cannon Cells. All muds quebracho-soda treated.
* 90% of saturation concentration of water content.

tion. This anomalous behavior has been adequately confirmed by additional tests.

3. *Muds protected with Alginate* show marked fermentation in the absence of treating agents but this is considerably reduced by the use of pyrophosphate and greatly reduced by using quebracho-soda. Ten percent salt prevents fermentation entirely in quebracho-soda-treated mud but has no preservative action in untreated or pyrophosphate-treated samples.

The striking protection offered by quebracho-soda but noticeably absent in pyrophosphate-treated samples suggests that the protective agents described should preferably be used with the former.[3]

High Temperature Behavior of Protected Muds Containing Salt

The behavior of protected muds containing salt has been studied at elevated temperatures in order to make certain that high bottom-hole temperature will not destroy the protective action of the added materials.

An early test in the absence of salt indicated that the protective action was even somewhat greater at high than at room temperature as may be seen in Table 4.

These experiments have been extended to include the entire range of salt concentrations from those likely to occur from normal contamination, through sea-water muds, to saturated-brine muds; and as may be seen in Table 5 the protective action is maintained at elevated temperature over the entire range of salt content.

Of considerable importance is the large reduction in viscosity of the protected muds at elevated temperature. Thus while the viscosity at room temperature appears in some cases to be excessive, in every case large reductions to normal viscosity occur at high temperatures.

Another interesting point which is brought out in these tests is the fact that for the nearly saturated brine muds, moss is considerably more effective than is alginate; the water loss is nearly twice as great with the latter as with moss.

[3] U.S.P. 2,211,688; Byck, Freeland, Lawton.

TABLE 6

Behavior of Various Muds Toward Protective Agents

Treatment — Mud	70 Lb. Lebec	75 Lb. Palos Verdes	75 Lb. Coalinga	75 Lb. McKittrick
Base Mud Alone:				
Water loss (cc.)	7.2	6.9	16.4	9.4
Viscosity (cp)	9.6	5.0	5.0	6.9
Base Mud + 5% Salt:				
Water loss (cc.)	39.5	21.2	17.3	24.8
Viscosity (cp)	105	14.7	6.9	16.9
Base Mud + 5% Salt + 0.6% Moss:				
Water loss (cc.)	4.2	3.7	4.6	4.3
Viscosity (cp)	>200	87	59	98

Water loss: 45 minutes at 100 lbs. pressure; Cannon Cells.

TABLE 7

Effect of Temperature on Viscosity of Various Protected Muds (0.6% Irish Moss)

MUD — Temperature	75° F.	110° F.	140° F.	170° F.
70 lb. Lebec:				
No Salt	40 cp	31 cp	25.5 cp	30.0 cp
5% Salt	165	126	73.0	53.0
75 lb. Palos Verdes:				
No Salt	35.0	25.0	21.4	21.4
5% Salt	73.0	52.0	37.0	28.0
75 lb. Coalinga:				
No Salt	33.0	23.0	16.9	14.7
5% Salt	59.0	40.0	32.0	24.5
75 lb. McKittrick:				
No Salt	40.0	28.0	23.0	21.0
5% Salt	80.0	51.0	39.0	30.0

General Applicability

Since most of the tests already mentioned in this paper were made using Ventura mud as the base, the general applicability was established by similar tests on four other California muds. The results on the whole were similar although it was observed that the viscosity increase due to the addition of protective agents is excessive in some muds, and this point should be checked before use. The results are presented in Table 6.

The marked reduction of viscosity at elevated temperature previously noted, was observed with these four muds as well, as the results in Table 7 clearly demonstrate.

Special Muds

The experiments so far discussed, have established the effectiveness of these protective agents for normal salt contamination, for sea-water muds, and for saturated-brine muds useful in heaving-shale or salt-dome penetration.

The possibility of using these agents in the preparation of other types of special-purpose muds has likewise been studied. One example is the occasional need for pure carbonate muds, i.e., slurries of oyster shells in water. The plastering properties of such muds is so poor that in the filter tests of normal duration, all of the free water is filtered off, leaving the moist solids packed on the surface of the filter. Such muds are hardly practical.

By the addition of small amounts of the protective agents to carbonate mud, the water loss can be

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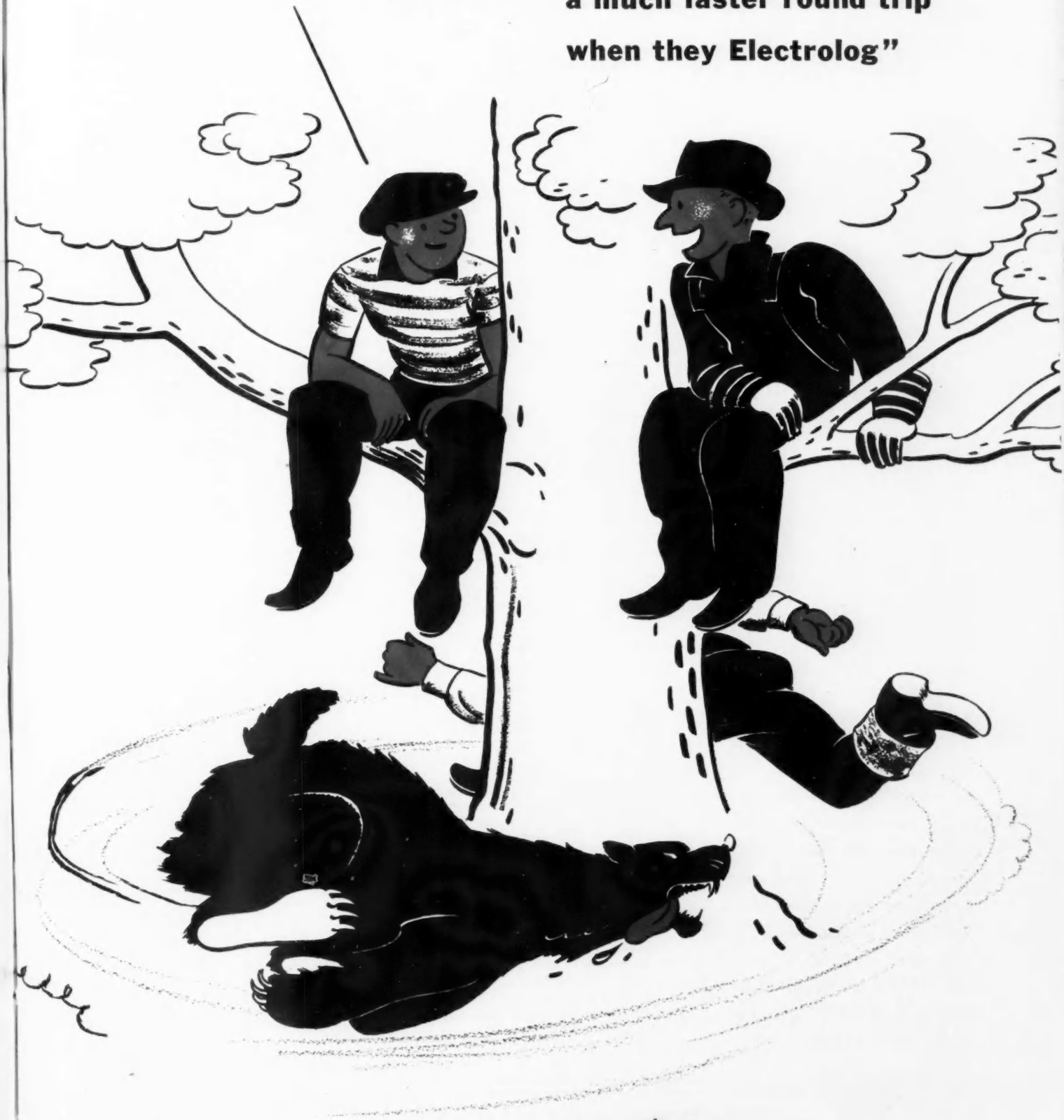

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reduced to a value lower than that of a good clay mud, and to nearly the extremely low values of clay muds with protective agents.

Method of Application of Protective Agents in the Field

In the experiments just described, the various agents were added to the mud in the form of dilute (about 4 percent) water solutions. More concentrated solutions are so viscous as to be impractical for field use. Solution of the colloids may be greatly facilitated without imparing the effectiveness, by the use of hot water or steam.

Although the final concentration of these agents in the mud is less than 0.75 percent, the use of such dilute stock solutions entails the addition of large volumes of water to the mud, and due allowance must be made for this dilution in establishing the desired mud weight. In certain cases it is likely that the agents can be added slowly to the mud in dry form, but complete solution or dispersion of the material is essential to its successful application.

Both materials should be stored dry and put into solution only as needed. Solutions in the absence of quebracho-soda or other preservatives are quite susceptible to mold and fermentation.

Conclusions

The use of Irish moss or sodium alginate in relatively low concentrations may be expected to improve the plastering properties of muds, to protect them against salt contamination over the range of normal contamination concentration, to permit the use of sea water to prepare muds of excellent plastering properties, and to permit the use of saturated brine muds, likewise of excellent plastering properties.

Furthermore, special-purpose muds such as straight-carbonate muds, can be given excellent plastering properties.

For salt concentrations resulting from normal contamination 0.2 percent protective agent (by weight of total mud) should be adequate; for sea-water muds and saturated brine muds concentrations between 0.2 percent and 0.6 percent are recommended.

A field trial of the method by Shell Oil Company, Incorporated has met with success.

HIGHLIGHTS IN THE WEEK'S NEWS

Legislation

Activity Remains Slow on National and State Fronts

Suggestions of members of the Temporary National Economic Committee for recommendations with respect to control of the oil industry to be incorporated in the committee's final report will be presented at open hearings which probably will be held within the next two weeks, it has been announced by Chairman Joseph C. O'Mahoney (Dem., Wyo.).

It was explained that the purpose of this procedure is to make certain that, as nearly as possible, there shall be a full expression of all points of view on the subjects with which the committee has concerned itself.

Meanwhile, state legislatures witnessed introduction of additional measures affecting the industry, but, with one exception, none had proceeded any distance toward passage. The exception was an Oklahoma House bill calling for relevying a 0.125-cent-a-barrel tax on oil for enforcement of conservation laws and to finance activities of the Interstate Oil Compact Commission. It passed the House and was sent to the Senate for concurrence.

The oil investigation was one of the major phases of the TNEC's work of studying monopoly, and it is generally known that the Department of Justice and other federal agencies represented on the TNEC have in mind suggestions for possible government control of certain activities. These recommendations will be put forth at the projected hearings and, it is expected, will be the subject of considerable controversy.

Ask Section 16 Case Litigation

Provision for continuing litigation in the Section 16 case is made in the first appropriation bill submitted to Congress. A supplemental estimate of $25,850 for protection of government's interest in oil lands was sent to Congress some days ago by President Roosevelt.

Robert E. Mulroney, chief of the trial section of the lands division of the Department of Justice, explained that the fund is the same as was provided for the current fiscal year, with which the so-called Section 36 case was brought to a conclusion that involved payment to the Treasury of $7,137,574.72, but will be needed to carry on the so-called Section 16 case, which the General Petroleum Corporation has advised will be contested.

Mulroney told the House Appropriations Committee, during hearings on the independent offices appropriation bill in which the fund was carried, that, while in the Section 36 case the government recovered for oil taken out of the ground, Section 16 differs in that it has not been drilled so that only the land itself will be recovered. The land, however, he added, has a value in excess of $1,000,000.

While the General Petroleum Corporation has advised only that it will contest the government's claim in the trial court, there is some question whether a verdict in favor of the United States in that court would be appealed in view of the final decision of the Supreme Court in the Section 36 case, he said. If the case is settled by a trial court decision, it may be brought to conclusion within a year, but if appealed, as much as three years may be required.

Taxes on natural resources, and especially oil and its products, are of primary interest to members of the House of the Texas legislature, it was indicated last week by the number of tax bills introduced and by a night session of 40 House members to discuss ways and means of obtaining higher revenues from the oil business.

Representative G. C. Morris, Greenville, acted as temporary chairman at the meeting, and a committee was appointed to draft a bill agreeable to the entire group that would raise resource taxes. C. S. McLellan, Eagle Lake, called the meeting.

Included in the tax bills which have been offered so far are omnibus tax bills which would raise money for the pension fund by increasing taxes on oil, sulphur and business. The business tax would be a gross receipts or franchise measure.

[*Continued on page 35*]

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Allowables

February Allowables Promise Effective Control of Crude

Especially effective control of crude oil production is promised for February by the allowables scheduled in the prorated states.

Analysis of the allowables, with consideration of the normal degree of success in making actual production conform with the quotas, indicates that the national output of crude oil in February should be very close to market requirements and possibly about 25,000 barrels a day under demand, in which case about 750,000 barrels would be taken out of storage during the month.

This conclusion gives consideration to the prospect that Illinois probably will underproduce the demand for its oil at least 15,000 barrels daily. It also recognizes that California may again in February, as in January, overproduce its adopted allowable about 40,000 barrels daily.

Michigan does not fix a state allowable but regulates its fields, which are moreover, on a decline; and that state likely will underproduce its demand about 7500 barrels daily.

Arkansas, Kansas, Louisiana, New Mexico, Oklahoma, and Texas may be counted upon to hold actual production close to their allowables, and those allowables conform well with indicated market demand, as estimated by the Bureau of Mines.

Texas Body Orders Nine February Shut-Down Days

The Texas Railroad Commission, in setting allowables for February and March, provided for production of approximately 1,319,000 barrels daily. The total scheduled allowable is 1,791,143 barrels, but by closing most fields nine days in February and 10 days in March, the lower figure will be obtained.

The commission made numerous adjustments, cutting some fields and raising others. Principal cuts were in Southwest Texas, where La Rosa, Government Wells, Jennings, Loma Novia, and Rincon fields were reduced considerably. South Government Wells was cut 1746 barrels, and Rincon lost 1328 barrels.

In North Texas, Rogers & Rogers and Walnut Bend were cut, and the largest reduction of all was ordered for Talco, cut 8793 barrels daily.

Largest increases were to fields in West Texas. Goldsmith was raised 4566 barrels, Gulf McElroy was raised 2526 barrels, and North Cowden was raised 2225 barrels. In North Texas, KMA was raised 1250 barrels, and Hull-Silk-Sikes was raised 1011 barrels.

The commission ordered Panhandle fields shut in six days in February and seven days in March, as follows: February 2, 9, 15, 16, 23 and 28, and March 2, 9, 15, 16, 23, 30 and 31.

Fields exempt from all shutdowns

were Luling Branyon, Salt Flat, Mission River, Oakville, Plummer, Moca, Charamousca, Eagle Hill, Minnie Bock, Seven Sisters, Samfordyce, Samfordyce North, Angleton, Arriola, Beaumont West, West Orange, Kubela, Bammel, Barbers Hill, New Batson, Boling, Buckeye, Clay Creek, Damon Mound, Danbury Dome, Esperson, Eureka Heights, Gillock, High Island, Hull, Humble, Livingston, Lochridge, New Mykawa, Mykawa, Louise, Sandy Point, North Dayton, West Columbia and West Columbia New.

Also exempt were Mexia, Powell, Richland, Sulphur Bluff, Wortham, Boggy Creek, Cayuga, Grapeland, Lone Star, Talco & Rodessa, Big Lake, Grayson & World, Hendricks, Howard Glasscock, Iatan East Howard, Snyder, Taylor Link, and Johnson.

Other fields will be closed on the following days: February 1, 2, 8, 9, 15, 16, 22, 23 and 28, and March 2, 8, 9, 15, 16, 22, 23, 29, 30 and 31.

Dismissal Closes Coast Anti-Trust Prosecution

Federal Judge Paul J. McCormick, acting on motion of the Department of Justice in district court at Los Angeles, has dismissed an indictment against Tide Water Associated Oil Company charging the company conspired to violate the Sherman act. Tide Water was the last major company still under indictment, having elected to contest the suit. Other companies had terminated action against them on pleas of nolo contendere.

Union Oil Company Awards Tanker Contracts

Union Oil Company has awarded contract to Bethlehem Steel Company for construction of two 130,000-barrel tankers. Delivery is scheduled for 1943. The ships will be 500 feet long, have a moulded breath of 68 feet and moulded depth of 37 feet, with deadweight carrying capacity at summer freeboard of 16,400 tons. Displacement in salt water will amount to 21,500 tons.

The company has one other ship under construction, has placed contracts during the past year for two other ships to be delivered in 1942.

World-Wide Developments

Rumor Says China Discovery "Enough Oil for 100 Years"

Spokesmen described in press dispatches as "petroleum experts" were quoted as saying last week that a new field just discovered in northwest Kansu province, China, could produce good-quality oil in quantities sufficient to last China 100 years.

The same dispatches stated that reliable information revealed an agreement had been reached between China and Soviet Russia whereby Russia would supply drilling and refining equipment.

China's exploratory efforts throughout the years have revealed a number of prospects, but none of very much commercial possibility.

The Chinese government was reported last week to have purchased 50 light drilling units from a United States firm.

Russia Expected to Further Expand Exploration Work

Attempts to attain the Soviet production quota of 1,000,000 barrels daily in 1942 probably will lead to an increase in exploratory work in 1941 over that in 1940, when there were an estimated 500 geological, geophysical and test drilling crews active in Russia. There were about 250 such crews busy in 1939.

Attainment of the 1,000,000-barrel goal is necessary, for not only has Soviet domestic consumption grown rapidly during the past five years but the country has made trade treaties committing herself to deliver to Germany 1,500,000 tons of petroleum products. In addition, Sweden has a treaty with Russia that calls for a substantial amount of oil from Soviet fields. Attempts are being made to arrange for Finland to use nothing but Russian oil. With the exception of that small part of Continental Europe demand which can be supplied by areas now under domination of the German army, it is possible that the present political situation in Europe will lead to one in which the Soviets will dominate the petroleum market in that part of the world, unless the democracies triumph. Russo-German monopoly of coal and oil in Continental Europe already is being used as an axe in negotiation of trade treaties.

As things stand, Germany and Russia do not have enough production to continue holding the club over Europe's head without buying additional supplies of oil elsewhere. Their combined refining capacity totals around 1,091,875 barrels daily, including plants dominated by the Nazi army and excluding Italy's 57,300-barrel daily capacity. Broken down, these figures represent 224,200 barrels in Rumanian plants; 75,000 barrels in Greater Germany and Poland; 128,000 barrels in 16 French plants; 15,000 barrels in Rotterdam, and 12,175 barrels in Belgium. Russia's refining capacity is estimated at 637,500 barrels daily. To the foregoing could be added an estimated 100,000 barrels daily of gasoline capacity from German synthetic plants.

Crude Estimates

Pitting crude production of these countries against their refining capacity, one arrives at the following estimates of daily crude output: Russia, 620,000 barrels daily (the 1940 yield); Greater Germany, 21,918 barrels daily, based on an annual yield estimated at 8,000,000 barrels; Rumania, 116,438 barrels daily, based on the annual figure of 42,500,000 barrels in 1940, and Poland, 25,000 barrels daily, a generous estimate when calculated on current report that her refining capacity is more than three times as great as her oil-producing capacity. Added up, these give the Russians and Germans a combined total crude producing capacity of 783,356 barrels.

Germany's hopes to increase crude production substantially are reflected in activity in Rumania. Some sources believe Rumania's production can be increased as much as 50 percent within a year. Figures at the close of the third quarter of 1940 revealed 103 rigs in operation there, giving Rumania third rank in the world in drilling activity at that time. Others are of the opinion that such an appreciable increase could not be brought about within a year. It must be pointed out, however, that government regulations were not such as to encourage boom drilling by private enterprise. When the war broke out, there was little money to be made in Rumanian oil under existing restrictions. But production cost will be incidental in the Nazi scheme of things.

Japanese Companies Seek New Sources for Oil Supply

Several Japanese companies, including Mitsui, Mitsubishi, and Ogura, have founded the Toa Oil Corporation, a new importing company, with capital of 5,000,000 yen, to promote importation of petroleum from non-American countries, in view of difficulties of importing oils from the United States. Iran and the Netherlands East Indies are under consideration as desirable sources, and it is recognized that the oil fields in the Netherlands part of Borneo offer especially favorable transport facilities.

Reports last fall indicated that Borneo Petroleum Company, a Japanese com-

Strict Allowables Scheduled for February

STATE	Bureau of Mines Estimate of Demand	State Allowable Beginning of Month	Difference of Allowable from Demand	Percent Difference of Allowable from Demand
Arkansas	66,100	69,969	+ 3,869	+ 5.9
California	595,700	571,000*	— 24,700	— 4.1
Kansas	193,200	197,000	+ 3,800	+ 2.0
Louisiana	288,600	294,942	+ 6,342	+ 2.2
Michigan	47,500	40,000†	— 7,500	— 15.8
New Mexico	100,700	106,000	+ 5,300	+ 5.3
Oklahoma	442,500	400,000	— 42,500	— 9.6
Texas	1,312,900	1,318,873§	+ 5,973	+ 0.5
Total 8 Prorated States	3,047,200	2,997,784	— 49,416	— 1.6
Illinois	342,100	326,900‡	— 15,200	— 4.4
Other States	239,600	.....	.....	.....
TOTAL UNITED STATES	3,628,900	.....	.....	.....

* Recommendation of Conservation Committee of California Oil Producers.
† Estimate of actual production that will occur under prescribed regulations.
‡ Average level to which unprorated Illinois production had naturally declined for 4 weeks ended January 25, 1941.
§ Estimated net basic daily allowables as of February 1. Railroad Commission estimates that actual production normally is about 3 percent under the allowable. But allowable normally increases as new wells are completed. Under February-March order, most Texas fields were ordered shut down February 1, 2, 8, 9, 15,16, 22, 23, and 28; March 2, 8, 9, 15, 16, 22, 23, 29, 30 and 31. Texas Panhandle was ordered shut down February 2, 9, 15, 16, 23 ard 28; March 2, 9, 15, 16, 23, 30 and 31.

pany, founded in 1929, presumably with participation of Netherlands capital, had obtained its first success in several years of prospecting by completing a producing well on the eastern coast of Netherlands Borneo, with initial production of 35 barrels daily.

Protest Expropriation of Rumanian Pipe Line

A strong protest against expropriation of a pipe line owned by Romano-Americana, Inc., subsidiary of Standard Oil Company of New Jersey, and a suggestion that the line either be returned to its owners or acquired on a basis of adequate compensation, have been laid before the Rumanian government by the United States minister at Bucharest, it was reported in Washington last week. State Department officials, however, said they had no comment to make on the report.

The minister is understood to have informed the Rumanian foreign office that the 25-year, 3-percent bonds which had been offered for the $1,000,000 pipe line were not considered to be adequate compensation the United States Government has demanded for its nationals wherever their property abroad has been seized.

The pipe line was one of a number of oil properties which the Rumanian government has taken over, apparently at the demand of Germany, in order to assure the latter country a more adequate supply of oil and oil products.

Report on Anticipated Boost In Hungarian Production

Crude oil production in Hungary was expected to increase by the end of 1940 to approximately 5950 barrels daily, equivalent to 2,170,000 barrels annually, or about the amount previously consumed in a year by the country.

In the summer of 1940, there were 40 wells producing about 5200 barrels daily in the Lispe district, southwest Hungary, about twice the number of wells and double the production of a year ago. Oil was discovered there near the close of 1937 by Hungarian-American Oil Industry Company.

From Lispe to Budapest, a pipe line of 3700-barrel daily capacity was reported last fall to be under construction.

At that time there were hopes also of important production in a newly discovered producing area at Lovaczy, 11 miles north of Lispe, where the same American company had completed a discovery well yielding about 185 barrels daily.

Meanwhile, the Hungarian government was obtaining disappointing results in drilling in the Bukkszek district.

This item is based on a translation from *Oel und Kohle*, vol. 36, No. 38, Berlin, October 8, 1940, Mineralölberichte, pp. 304-305.

Ireland Rations Gasoline to One-Sixth of Normal Supply

Citizens of Ireland are now having to get by on a gasoline ration equivalent to one-sixth of what it was when the war started. A cut from one-fourth to one-sixth in the gasoline ration was made just before the coal ration was reduced to one-half ton per month for each household.

Legislation

[*Continued from page 33*]

Representative Harris, Dallas, has offered a bill providing a tax of one cent on all gasoline processed in Texas. He argues that this would raise a great deal more money, most of which would come from a product which is sold outside the state.

House Bill 48 provides for an increase on oil alone, but there are plans for placing a large tax on natural gas. The tax would be ¼- or ½-cent per 1000 feet, and would apply to all gas produced. It would act as a severance tax, intended as much to prevent the waste of gas as to raise revenue.

Bills also have been introduced to provide for extension of the Texas proration laws, which expire in September of this year, and for participation of Texas in the Interstate Oil Compact Commission. The first hearing on the bill to extend the proration laws is set for Tuesday night, February 5, before the House committee on oil, gas and minerals, of which Representative Leslie Clark of Breckenridge has been named chairman.

A bill to create a new oil and gas commission, which promises to precipitate one of the biggest controversies of the session, has been given to the House state affairs committee, of which Augustine Celaya, Brownsville, is the chairman. No hearing has been set on the bill, either in the House or the Senate, but both proponents and opponents are busy trying to obtain votes of members of both houses.

Fifteen bills having an indirect bearing on the oil and gas industry have been introduced so far in the Michigan legislature. Although the 1941 session is still young, expected bills to alter the status of the 1939 oil conservation act have not materialized.

So that a new division of gasoline tax monies could be made between the state, counties and cities, a proposal is under consideration, but has not reached the legislature in bill form, that would up the present 3-cent tax to four cents.

Viewed by industry leaders as the most dangerous bill to date is House Bill 24, which proposes to make it possible for former owners of land which reverted to the state in 1938, 1939 and 1940 in lieu of taxes, to reclaim the land by payment of sale fees and a 10 percent penalty within six months after the bill becomes law. By paying the fees and penalty, a former owner would be entitled to a quit-claim deed and full mineral title. Hundreds of acres of land that would be affected already has been leased by the state, which, under the present law, now owns the mineral rights.

Four new bills were introduced in the California legislature, three in the House and one in the Senate. House bills would empower the California Lands Commission to drill for oil and gas, would levy a tax of 25 cents a barrel on oil and mineral rights when separated from land rights, and would provide that California join the Interstate Oil Compact Commission. The Senate bill would provide that in foreclosure sales, oil and mineral rights would not go to the purchaser of surface rights.

In New Mexico, a bill seeks to levy a 10-percent tax on natural gas and petroleum products competing with coal for heating purposes. It would apply to natural gas and all "derivatives of crude petroleum or crude oil, except gasoline, medicinal oils, wax or lubricating oils."

A Washington bill would provide for state purchase, sale, distribution and production of motor fuels and lubricants. It was referred to the public utilities committee of the House.

New Arkansas bills would provide for liens on oil, gas and water wells and equipment for the benefit of trucking companies hauling the equipment, and would repeal a 1939 law regulation containers for butane gas.

Bill Calls for Permanent Texas Proration Statute

Plans are under way to permanently incorporate Texas proration laws in the state statutes. A bill introduced in the Texas House last week would extend these laws indefinitely from their expiration date in September, 1941.

Proponents of permanent legislation declare the Texas law has been tried sufficiently to determine its value. The act was first passed in 1933, and has been amended at each session thereafter. However, amendments made in 1939 were largely corrective, and brought no major change in the policy or purposes of the act.

Another benefit which sponsors of the bill hope to derive from a permanent law is a stability that may be used in opposing federal control of the oil industry. They point out that instability has been one of the defects in Texas proration that has been subjected to federal criticism most frequently. By establishing a permanent statute, they hope to convince federal authorities that Texas plans to keep the industry under control.

In the past, it has been thought wise to enact the law for two-year periods so it might be possible to amend the law readily. The short periods have also been used to satisfy opponents of proration who viewed it as a major-company threat that might engulf them unless some terminal date was provided in the statute itself. Since proration has become generally accepted in Texas, much of the value of this argument is gone, and there is little apparent opposition to the re-enactment of the bill.

Compact Bill Considered Drastic

However, any consideration of legislative action on the Texas proration laws would be incomplete unless proper consideration and weight is given to the model law which has been proposed by the Interstate Oil Compact Commission. While this bill has not been introduced at Austin, it has several sponsors in the Legislature who might well offer it as a substitute, either in committee meetings or on the floor. Because this bill defines property rights as well as providing control of oil and gas production, it is bound to cause considerable argument.

Indeed, some phases of this bill are so drastic and so in conflict with the views of many large and small producers that it is entirely possible no bill at all would be enacted rather than one providing for limitation of oil production for the prevention of physical waste.

These attitudes are well known to the proponents of the measure, and for this reason, they have indicated they might not offer the bill at this session. They have likewise taken into consideration the fact that there has been introduced in the legislature a bill to create a new oil and gas commission which would administer the law.

Crude Markets Firm; Lubes And Heavy Fuels in Demand

Continued strength of the crude oil market has been a significant feature of the general market picture, postings for Pennsylvania grade crude having been advanced again 15 cents a barrel January 27, while slightly better prices for Mid-Continent producers prevailed generally in consequence of the adoption by most purchasers of the use of 100 percent tank tables in computing the volume of oil purchased. The change has been made in Illinois, Oklahoma, Kansas, and Arkansas, and it has constituted in effect an increase of about 3 percent in prices paid to producers, as purchases previously were computed on 97 percent tank tables, by which method buyers deducted 3 percent for basic sediment and water in the bottoms of the tanks. Now deductions are made only in accordance with actual measurement of the sediment.

The new increase in Pennsylvania grade crude was the third 15-cent advance within 2½ months. The three raises have restored one half of the amount by which that crude was reduced in four cuts last May, June, July and August. New prices are shown in an accompanying table.

Responsible for betterment of the Pennsylvania crude postings has been the improvement of demand for lubricants, in conjunction with the present active business scene; refiners of the region having stepped up operations to the extent that bidding for crude has become more competitive.

Bright stocks particularly have been in better demand, and prices have shown some improvement; but neutral oils also are strong. The lubricant market is firm in the Mid-Continent as well as in the Appalachian region.

Further firming of the crude market in Southwest Texas was reflected in the action of Barnsdall Oil Company, effective January 28, restoring its former postings for the Heyser field of the Corpus Christi district. The company had lowered prices there January 1 by 2 to 24 cents a barrel on the lighter grades. In the move last week the company did not abandon similarly reduced postings for Fagan, McFaddin, Greta, Victoria, East Placedo, Keeran and Pacedo fields of the same district.

Markets for gasoline were quiet last week and prices were generally unchanged, although some pressure was placed on them by indications that stocks might increase sharply further, following a 1,500,000-barrel gain in the week ended January 25, in consequence of stepped-up refinery runs.

Light fuel oils and kerosene continue steady, with demand good but supplies quite adequate.

Refinery Runs Boosted but Heavy Fuel Oil Stocks Used

The industry currently is experiencing to a marked degree the difficulties foreseen several months ago in regard to providing enough heavy fuel oil without damaging the gasoline inventory situation.

In response to heavy demand for industrial grade fuels, refinery runs were increased sharply in the week ended January 25, to the largest proportions since last September and within 65,000 barrels of the highest daily average on record, established in June, 1940.

Despite the resultant stepping up of heavy fuel oil production, however, it was necessary to draw on stocks of that product to the extent of 1,000,000 barrels.

In reflection of the larger runs to stills, gasoline production increased somewhat for the week, and was due to show a larger gain in the ensuing week, upon the finishing of the larger quantities of gasoline that were in the making.

Meanwhile, winter weather interfered with consumption of motor fuel, and with demand handicapped and current production up, nearly 1,500,000 barrels backed up in storage, a more than normal accumulation even in mid-winter.

On the favorable side of the picture was the fact that the industry had adequate stocks of light fuel oils which were drawn upon to the comparatively large extent of 1,000,000 barrels in supplying seasonally large demand, as cold weather visited a large part of the country.

Also satisfactory was the trend of crude oil production, output of the wells of the nation having continued in close conformity with market requirements.

United States crude oil production averaged 3,599,100 barrels daily in the week of January 25, the American Petroleum Institute reported. That was about 13,000 barrels less than the daily average of the previous week and only 8000 more than indicated market demand.

Stocks of crude oil have attested the close balancing of production with demand, having shown practically no net change since last June. They stood at 259,934,000 barrels on January 18, the United States Bureau of Mines reported. At their present level, crude stocks are generally regarded as being about right.

Runs to stills averaged 3,625,000 barrels daily in the week ended January 25, according to the American Petroleum Institute. They had been increased sharply from the 3,490,000 barrels of the previous week, an enlargement of 135,000 barrels in the daily average. For the week, therefore, approximately 1,000,000 barrels more of crude was consumed than in the preceding seven days.

Production of gasoline increased to 11,673,000 barrels for the January 25 week, from 11,494,000 in the preceding seven days, a gain of 179,000 barrels or 25,000 daily.

Stocks of finished and unfinished gasoline in the United States increased during the week to 88,762,000 barrels from 87,351,000, but remained slightly under the year-ago trend, the inventory on

Trends of Operations and Changes in Stocks

Figures are from American Petroleum Institute weekly reports, except those on crude stocks, which are from Bureau of Mines weekly reports

WEEK ENDED	Crude Oil Production (Barrels Daily)	Crude Runs to Stills (Barrels Daily)	Crude Oil Stocks (Barrels)	Gasoline Stocks (Barrels)	FUEL OIL STOCKS	
					Gas Oil & Dist. Fuels	Residual Fuel Oil
1938:						
November 12	3,243,250	3,180,000	273,394,000	[6]67,551,000	34,175,000	120,491,000
December 10	3,245,100	3,150,000	[6]269,509,000	68,687,000	32,068,000	118,711,000
1939:						
April 22	3,526,700	3,280,000	277,156,000	[2]87,769,000	21,085,000	105,035,000
April 29	3,568,200	3,405,000	278,440,000	86,794,000	[7]25,844,000	[7]108,409,000
May 6	3,580,900	3,275,000	[2]278,607,000	86,216,000	26,167,000	108,597,000
July 29	3,539,100	3,460,000	268,513,000	77,887,000	34,900,000	114,053,000
August 5	[1]3,909,400	3,445,000	268,982,000	76,431,000	35,601,000	114,512,000
August 26	[8]1,690,800	3,475,000	246,982,000	73,475,000	37,722,000	116,237,000
September 30	3,658,200	3,560,000	233,023,000	71,168,000	38,081,000	115,466,000
October 7	3,435,850	3,505,000	231,564,000	[6]71,152,000	38,549,000	114,397,000
October 21	3,771,550	[2]3,650,000	[3]229,127,000	72,122,000	39,358,000	115,060,000
October 28	3,498,500	3,520,000	230,453,000	72,660,000	39,562,000	114,786,000
November 25	3,818,100	3,510,000	231,811,000	75,595,000	38,527,000	112,106,000
December 30	3,545,000	3,445,000	237,742,000	80,985,000	34,184,000	106,680,000
1940:						
January 27	3,611,600	3,470,000	237,339,000	87,914,000	27,407,000	103,015,000
February 24	3,732,100	3,490,000	240,836,000	96,719,000	25,390,000	103,419,000
March 30	3,841,250	3,585,000	250,561,000	101,370,000	23,778,000	105,081,000
April 20	3,858,550	3,535,000	254,881,000	[1]102,817,000	24,779,000	103,323,000
April 27	3,845,250	3,555,000	256,670,000	102,452,000	24,997,000	102,552,000
May 25	3,835,650	3,580,000	259,330,000	100,297,000	28,356,000	104,015,000
June 22	3,846,450	[1]3,690,000	260,891,000	97,276,000	32,751,000	104,683,000
June 29	3,639,550	3,625,000	262,059,000	95,142,000	33,590,000	104,486,000
July 27	3,690,400	3,555,000	262,579,000	90,173,000	38,981,000	105,924,000
August 31	3,501,350	3,575,000	265,865,000	85,393,000	44,766,000	108,774,000
September 28	3,799,950	3,600,000	263,609,000	82,373,000	47,986,000	108,450,000
October 26	3,640,300	3,565,000	262,746,000	80,891,000	[1]48,893,000	108,475,000
November 9	3,584,200	3,510,000	261,631,000	[6]79,847,000	48,408,000	107,687,000
November 30	3,335,050	3,510,000	262,679,000	80,284,000	46,212,000	106,618,000
December 28	3,385,500	3,585,000	261,552,000	83,274,000	42,266,000	102,620,000
1941						
January 4	3,367,200	3,600,000	260,643,000	85,530,000	42,606,000	102,563,000
January 11	3,364,450	3,565,000	259,342,000	86,328,000	41,094,000	102,281,000
January 18	3,611,900	3,490,000	259,934,000	87,351,000	39,920,000	101,213,000
January 25	3,599,100	3,625,000	.....	88,762,000	39,039,000	100,297,000
January 25, 1940	3,611,600	[3]3,436,000	[4]237,571,000	89,144,000	28,100,000	103,333,000
Change in past year	—0.3%	+5.5%	+9.4%	—0.4%	+38.9%	—2.9%

[1] All time peak. [2] Peak for year. [3] Lowest since April, 1922. [4] Stocks, January 20, 1940.
[5] Lowest since October, 1922, due to shut down of six mid-continent states. [6] Lowest for year.
[7] Prior to April 29, 1939, data did not include stocks at terminals, in transit, etc., except in California.
[8] January, 1940, daily average.

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LOUISIANA BRANCH: Lake Charles, 1400 Broad St.

January 25, 1940, having totaled 89,144,000 barrels. The present supply is, therefore, about 400,000 barrels, or 0.4 percent, smaller than that held a year ago. However, as indicated above, a large addition to gasoline stocks in the week ended February 1 would not be surprising.

Wholesale Prices of Refined Products

	Range Last week (Cents a gal.)		Changes from week Before	
REFINED GASOLINE				
Oklahoma Refineries:				
60 Octane and under	3¾	4⅛	...	...
63-66 Octane	4	4½	...	...
72-74 Octane	4⅝	5	...	...
Mid-Western Tank Car:				
60 Octane and under	3¾	4⅛	...	...
63-66 Octane	4	4½	...	...
72-74 Octane	4⅝	5	...	...
New York Harbor:				
68-70 Octane	5½	5½	...	...
72-74 Octane	5½	6⅝	...	...
Gulf Coast:				
60 Octane unleaded	3½	4	...	...
65 Octane unleaded	3⅞	4⅛	...	...
72-74 Octane leaded	4	5	+¼	+⅜
NATURAL GASOLINE				
Grade 26-70:				
F.O.B. Group 3	2⅜	2⅜	...	...
F.O.B. Breckenridge, Tex.	2	2	...	...
KEROSENE				
Oklahoma Refineries:				
41-43 water white	4	4⅛	...	...
42-44 water white	4⅛	4⅜	...	...
Mid-Western Tank Car:				
41-43 water white	4⅛	4¼	...	...
42-44 water white	4⅛	4⅜	...	...
New York Harbor	5⅛	5⅜	—¼	—⅛
RANGE OIL				
At Oklahoma Refineries	4	4⅛	...	...
In Mid-Western Market, Group 3, basis	3⅞	4	...	...
LIGHT FUEL OILS				
Oklahoma Refineries:				
No. 1 straw	3½	3⅞	...	...
No. 3	3⅜	3½	...	...
Mid-Western Tank Car:				
No. 1 white	3⅞	4	...	...
No. 3	3¼	3½	...	...
New York Harbor:				
No. 1	5⅛	5⅜	—¼	...
No. 3	4¼	4⅞	—⅜	...

	Range Last week (Per Bbl.)		Changes from week Before	
HEAVY FUEL OILS				
Oklahoma Refineries:				
No. 6	$0.65	$0.65	...	...
Mid-Western Tank Car:				
No. 5	.75	.85	...	...
No. 6	.55	.60	...	...
New York Harbor:				
No. 5	1.45	1.55	...	...
No. 6	1.25	1.25	...	...
BUNKER C FUEL OIL				
(Per barrel, ships bunkers)				
Gulf Coast	$ .80	$ .85	...	...
New York Harbor	1.25	1.25	...	...
DIESEL OIL				
(Per barrel, ships bunkers)				
Gulf Coast	$1.50	$1.70	...	...
New York Harbor	1.85	1.85	—.10	—.10
Los Angeles Basin, 27 gravity	1.20	1.26	...	...
LUBRICATING OIL				
(Cents a gal.)				
Oklahoma Refineries:				
Bright Stock, 150-160 viscosity at 210°, 10-25 pour test	13	15½	+1	...
Neutral oil, pale No. 3 color, 150 viscosity at 100°, 0-10 pour test	8	10¼	...	...
Western Pennsylvania:				
Bright Stock, 145-155 viscosity at 210°, 25 pour test	14	14½	...	+½
Neutral Oil No. 3 color, 150 viscosity at 70°, 25 pour test	19	20	...	...

Production Nearly Same For Past Three Weeks

Crude oil production in the United States was at practically the same level in the past week, ended February 1, as in the preceding two weeks, having averaged 3,594,850 barrels daily. That was 2100 barrels more than the daily rate of the previous week and only 3850 barrels above market demand as estimated by the United States Bureau of Mines.

Only minor fluctuations were recorded for the various states, and altogether, they approximately balanced out against each other. Texas was down a few thousand barrels to 1,334,800 barrels daily and exceeded market demand somewhat over 35,000 barrels for the period, although production for January as a whole was closely in accord with market requirements.

California was down about 4000 barrels to 603,800 daily and exceeded demand about 9000 barrels. Oklahoma rose 7500 barrels to 400,500 daily, but was 38,500 under demand.

Illinois output declined 1250 barrels to 323,500 daily and was 40,000 under estimated January demand. Louisiana increased 3000 barrels to 291,900 daily, and exceeded demand about 12,000 barrels. Kansas declined 1400 barrels to 198,000 daily, and was 7000 above demand. New Mexico had a decrease of 400 barrels, having averaged 100,700 daily, which was 700 more than estimated demand. Michigan and Arkansas showed only nominal changes.

United States Crude Oil Production Stays Near Demand

Estimates Compiled by The OIL WEEKLY

DISTRICT OR STATE	Bureau of Mines Estimate of Daily Demand (Jan.)	State Allowable (Barrels Daily in Jan.)	BARRELS DAILY FOR WEEK ENDED Jan. 25	Feb. 1
TEXAS—				
Texas Panhandle	.....	.....	73,200	73,900
North Texas	.....	.....	99,600	101,200
West Central Texas	.....	.....	29,800	29,600
West Texas	.....	.....	227,700	228,500
East Central Texas	.....	.....	83,000	81,700
East Texas Field	.....	.....	377,400	375,600
South Texas	.....	.....	200,200	195,800
Texas Gulf Coast	.....	.....	248,300	248,500
Total Texas	1,297,500	1,370,000*	1,339,200	1,334,800
CALIFORNIA—				
Long Beach	.....	.....	41,800	41,600
Midway-Sunset	.....	.....	45,200	39,000
Kettleman Hills	.....	.....	38,200	39,700
Wilmington	.....	.....	82,700	84,600
Others	.....	.....	400,000	398,900
Total California	594,800	571,000†	607,900	603,800
OKLAHOMA—				
Oklahoma City	.....	.....	90,700	89,650
Seminole Area	.....	.....	101,700	102,350
Others	.....	.....	200,600	208,500
Total Oklahoma	439,000	390,000	393,000	400,500
ILLINOIS—				
Salem	.....	.....	109,800	110,000
Louden	.....	.....	69,800	69,500
Centralia	.....	.....	13,850	13,400
Other New Pools	.....	.....	121,000	120,100
Old Pools	.....	.....	10,300	10,500
Total Illinois	363,600	.....	324,750	323,500

DISTRICT OR STATE	Bureau of Mines Estimate of Daily Demand (Jan.)	State Allowable (Barrels Daily in Jan.)	BARRELS DAILY FOR WEEK ENDED Jan. 25	Feb. 1
LOUISIANA—				
North Louisiana	.....	.....	68,800	69,800
South Louisiana	.....	.....	220,100	222,100
Total Louisiana	280,300	292,756	288,900	291,900
KANSAS	191,000	194,000	199,400	198,000
NEW MEXICO	100,000	104,000	101,100	100,700
EASTERN STATES—				
Pennsylvania Grade	48,000	.....	70,200	71,200
Others, Eastern	47,800	.....	20,500	20,600
Total Eastern States	95,800	.....	90,700	91,800
MOUNTAIN STATES—				
Wyoming	73,900	.....	75,100	75,300
Montana	19,000	.....	18,100	18,500
Colorado	3,900	.....	3,700	3,700
Total Mountain States	96,800	.....	96,900	97,500
MICHIGAN	46,100	41,000‡	40,800	40,400
INDIANA	20,000	.....	20,800	20,500
ARKANSAS	66,100	70,666	69,800	70,100
MISSISSIPPI	15,200	.....	16,900	18,850
NEBRASKA	2,000	.....	2,600	2,500
§Total 8 Prorated States	3,021,900	3,033,422	3,040,100	3,040,200
Total United States	3,591,000	.....	3,592,750	3,594,850

* Estimated net basic daily allowables as of January 1. Railroad Commission estimates that actual production normally is about 3 percent under the allowable. But allowable normally increases as new wells are completed. Under December-January order, most Texas fields were ordered shut down January 1, 4, 5, 8, 11, 12, 18, 19, 25, 26.

† Recommendation of Conservation Committe of California Oil Producers.

‡ Estimate of actual production under prescribed regulations, which do not fix a definite state total allowable.

§ Texas, California, Oklahoma, Louisiana, Kansas, New Mexico, Arkansas, Michigan.

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A.P.I. Southwest District Plans Shreveport Program

A schedule calling for two full days of meetings is being perfected for the spring meeting of the Southwest District, American Petroleum Institute's Division of Production, to be held February 27-28 at Shreveport.

Subjects of papers, with speakers to be announced, include:

"Analysis of Distillate Recovery Plants," with the discussion covering procedure used to determine feasibility of distillate-plant installations, methods of unitization, and determination of plant size and type.

"Testing of Gas to Determine Feasibility of a Recycling Plant," covering methods of testing gas wells to determine content and products that might be obtained through a recycling plant, field tests, laboratory tests, and how to use results of the tests for determination of the most efficient type of plant to be erected.

"Selection of Sucker Rods," will cover selection of rod size, energy requirements for pumping oil wells, and the possibility of considerable more fluid being lifted than is being done at the present time.

"Electrical Process for Treating Paraffin in Oil Wells," will describe a system employing electrical heating used successfully in over 100 wells in Texas Panhandle fields.

"New Theory of Squeeze Cementing," will cover dehydration of cement in squeeze cementing.

"A Preliminary Survey of the Heaving-Shale Problem," will review findings of operators who have studied the problem, and will report on laboratory research work on the subject conducted by an educational institution.

"Prevention of Corrosion of Steel Pipe Lines by Oil-Well Brines," will describe tests made in the field with sodium silicate to prevent corrosion in steel pipe lines.

E. P. Hayes, The Texas Company, Houston, is chairman of the program committee. He is being assisted by S. E. Buckley, Humble Oil & Refining Company, Houston; C. B. Carpenter, United States Bureau of Mines, Dallas; Harold Decker, Seaboard Oil Company of Delaware, Corpus Christi; G. H. Fancher, University of Texas, Austin; T. W. Johnson, Union Producing Company, Shreveport; Edgar Kraus, The Atlantic Refining Company, Carlsbad, New Mexico; E. B. Miller, Jr., Tide Water Associated Oil Company, Kilgore; and R. O. Van Fleet, Al Buchanan Drilling Company, Freer, Texas.

N. P. A. Meets in Cleveland, April 24-25

The National Petroleum Association has set its thirty-eighth semi-annual meeting for April 24-25 at Cleveland. Dates were selected so as not to conflict with school holidays at Easter, which falls this year on April 13.

Novice Field, Coleman County, Gets Pipe Line Outlet

Octane Pipe Line Company, transportation unit of Baird Refining Company, is building a 27-mile 4-inch oil line, extending from the Novice 38-well deep area, northern Coleman County, to the company's refinery at Chautauqua, Texas. The field's 1500-barrel daily output has been dependent upon tank-truck shipment to refineries in West Central Texas for a market. Octane Pipe Line Company also contemplates an extension of its Novice line to the Goldsboro pool, which has an allowable of 350 barrels daily.

Ask 40-Acre Proration Units for Bowers Field

Operators in the Bowers (Benton and Holmes) field, Montague County, have requested the Texas Railroad Commission to permit as much as 40 acres to be assigned to any well for proration purposes. Rules now provide for 20-acre proration units, with ten acres assigned to the final well on the unit.

There are nine wells in the field, and the plan was opposed by Mudge Oil Company, which owns two of the wells. J. S. Hudnall, Tyler geologist representing Mudge Oil Company, said there were so many dry holes in the vicinity that 40 acres could not properly be assigned to every well.

Operators also requested a minimum allowable of 75 barrels per well to place the field on a parity with Rogers & Rogers and Bonita, both located nearby.

CALIFORNIA CRUDE OIL PRICES

Posted effective February 1, 1940. All gravities above those quoted take highest price offered in that field.

Gravity	Wilmington	Signal Hill (Long Beach), El Segundo	Seal Beach	Huntington Beach	Inglewood	Playa del Rey	Olinda, Brea, Canon	Athens-Rosecrans	Elwood Terrace	Torrance	Richfield	Whittier, East Coyote (La Habra)	Montebello	West Coyote Hills	Santa Fe Springs	Newhall, McKittrick, Kern River, Round Mt., Kern Front	Greeley Canal	Coles Levee, Richfield Western	Mountain View	Elk Hills, Buena Vista Hills, Midway-Sunset, Lakeview Area	Lost Hills	Coalinga	Wheeler Ridge	Kettleman Hills
14-14.9	$0.60	$0.65	$0.64	$0.63	$0.64	$0.65	$0.61	....	....	$0.65	$0.61	$0.61	$0.62	$0.63	....	$0.60	....	....	....	$0.60	$0.60	$0.60	....	....
15-15.9	.60	.65	.64	.63	.64	.65	.61	....	....	.65	.61	.61	.62	.63	....	.60	....	....	....	.60	.60	.60	....	....
16-16.9	.60	.65	.64	.63	.64	.65	.61	....	....	.65	.61	.61	.62	.63	....	.60	....	....	....	.60	.60	.60	....	....
17-17.9	.62	.65	.64	.63	.68	.65	.61	....	....	.65	.61	.61	.62	.63	....	.60	....	....	....	.60	.60	.60	....	....
18-18.9	.64	.65	.64	.63	.71	.65	.65	....	....	.68	.61	.61	.62	.63	....	.60	....	....	....	.60	.60	.60	....	....
19-19.9	.69	.69	.64	.67	.75	.70	.69	....	....	.72	.61	.65	.62	.63	....	.60	....	....	$0.60	.64	.64	.61	$0.60	....
20-20.9	.73	.73	.64	.72	.79	.76	.74	....	....	.75	.65	.69	.62	.67	....	....	....	....	.60	.69	.69	.62	.60	....
21-21.9	.78	.78	.64	.76	.82	.81	.78	....	....	.79	.69	.73	.62	.72	$0.63	....	....	....	.64	.74	.74	.66	.60	....
22-22.9	.82	.82	.69	.81	.86	.86	.82	....	....	.82	.73	.77	.66	.76	.63	....	....	....	.68	.79	.78	.70	.63	....
23-23.9	.86	.86	.75	.85	.89	.92	.86	$0.71	....	.86	.78	.82	.71	.81	.67	....	....	....	.71	.84	.82	.74	.67	....
24-24.9	.90	.90	.80	.90	.93	.97	.90	.77	....	.89	.82	.86	.75	.85	.72	....	....	....	.75	.89	.86	.78	.71	....
25-25.9	.95	.95	.86	.94	.96	1.02	.95	.82	....	.93	.86	.90	.80	.89	.77	....	....	....	.79	.94	.90	.82	.75	....
26-26.9	.99	.99	.91	.99	1.00	1.08	.99	.88	....	.96	.90	.94	.84	.94	.82	....	....	....	.83	.99	.95	....	....	....
27-27.9	1.03	1.03	.97	1.03	1.04	F.O.B.	1.03	.94	....	1.00	.94	.98	.89	.98	.87	....	$0.83	$0.92	.87	1.04	.99	....	....	....
28-28.9	1.07	1.07	1.02	1.07	1.07	Pipe Line	1.07	.99	....	1.03	.98	....	.93	1.02	.91	....	.86	.96	.91	1.09	1.03	....	....	....
29-29.9	1.10	1.10	1.07	1.11	1.10	....	1.10	1.04	----	1.06	1.02	....	.98	1.06	.96	....	.90	.99	.95	1.14	1.07	....	....	....
30-30.9	1.14	1.14	1.12	1.15	1.14	....	1.14	1.09	F.O.B.	1.09	....	....	1.02	1.10	1.01	....	.94	1.02	.99	1.19	1.11	....	....	....
31-31.9	....	....	....	....	1.17	....	1.17	1.14	Ship	....	....	....	1.07	1.14	1.05	....	.98	1.06	1.02	1.24	....	....	....	....
32-32.9	....	....	....	....	1.20	....	1.20	1.19	----	....	....	....	1.11	1.18	1.09	....	1.02	1.09	1.06	1.29	....	....	....	....
33-33.9	....	....	....	....	....	....	....	1.24	$1.21	....	....	....	1.15	1.22	1.14	....	1.06	1.13	1.10	1.34	....	....	....	$1.12
34-34.9	....	....	....	....	....	....	....	1.29	1.25	....	....	....	1.20	1.26	1.19	....	1.10	1.16	1.14	....	....	....	....	1.17
35-35.9	....	....	....	....	....	....	....	1.34	1.29	....	....	....	1.24	....	1.23	....	1.14	1.20	....	....	....	....	....	1.21
36-36.9	....	....	....	....	....	....	....	1.39	1.33	....	....	....	1.28	....	1.27	....	1.18	1.23	....	....	....	....	....	1.25
37-37.9	....	....	....	....	....	....	....	1.44	1.37	....	....	....	1.33	....	1.31	....	1.22	1.26	....	....	....	....	....	1.29
38-38.9	....	....	....	....	....	....	....	1.49	....	....	....	....	1.37	....	1.36	....	1.25	1.30	....	....	....	....	....	1.33
39-39.9	....	....	....	....	....	....	....	1.54	....	....	....	....	1.42	....	....	....	1.29	1.34	....	....	....	....	....	1.38
40-40.9	....	....	....	....	....	....	....	1.59	....	....	....	....	1.46	....	....	....	1.33	1.37	....	....	....	....	....	....
41-41.9	....	....	....	....	....	....	....	....	....	....	....	....	1.50	....	....	....	1.37	1.40	....	....	....	....	....	....
42-42.9	....	....	....	....	....	....	....	....	....	....	....	....	1.54	....	....	....	1.41	1.44	....	....	....	....	....	....
43-43.9	....	....	....	....	....	....	....	....	....	....	....	....	1.59	....	....	....	1.45	1.47	....	....	....	....	....	....
44-44.9	....	....	....	....	....	....	....	....	....	....	....	....	1.63	....	....	....	1.49	1.51	....	....	....	....	....	....
45-45.9	....	....	....	....	....	....	....	....	....	....	....	....	1.67	....	....	....	1.53	1.54	....	....	....	....	....	....
46-46.9	....	....	....	....	....	....	....	....	....	....	....	....	1.71	....	....	....	1.57	1.57	....	....	....	....	....	....
47-47.9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1.61	....	....	....	....	....	....	....
48-48.9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1.64	....	....	....	....	....	....	....

CRUDE OIL PRICE SCHEDULES

Mid-Continent Gravity Scale Prices—Posted October 11-13, 1938, Except as Shown Under Headings

(Some fields of Mid-Continent have flat price postings, and are shown separately)

Gravity	[7]Okla.-Kans.	[10]North La.-Ark. 10-17-40	[9]Atlanta, Ark. 10-17-40	North & W. Central Tex.	East Central Tex.	Gray Co., Tex.	Carson, Hutchinson Co., Tex.	[1]Tomball, Tex. Type	West Tex.-New Mex.	[2]Gulf Coast (Tex.-La.) 10-2-39	[3]Some La. Gulf Areas 10-2-39	Jennings, La.	[4]Anahuac, Tex. Type 10-2-39	[5]Refugio, Tex. Type 10-2-39	[6]Mirando, Tex. Type 10-2-39	[8]Salt Creek, Wyo. (except Tensleep)
19–19.9	.....	.....	.....	.....	.....	.....	.....	.....	*$0.53	*$0.86	*$0.86	.....	*$0.81	*$0.91	*$0.86	.....
20–20.9	$0.60	.....	.....	.....	.....	.....	.....	.....	.55	.88	.88	.....	.83	.93	.88	$0.70
21–21.9	.63	.....	.....	.....	.....	.....	.....	.....	.57	.90	.90	.....	.85	.95	.90	.72
22–22.9	.66	.....	.....	.....	.....	.....	.....	*$0.95	.59	.92	.92	.....	.87	.97	.92	.74
23–23.9	.69	.....	.....	.....	*$0.78	.....	.....	.97	.61	.94	.94	.....	.89	.99	.94	.76
24–24.9	.72	*$0.73	*$0.63	*$0.71	.80	.....	.....	.99	.63	.96	.96	.....	.91	1.01	.96	.78
25–25.9	.75	.75	.65	.73	.82	.....	.....	1.01	.65	.98	.98	.....	.93	1.03	.98	.80
26–26.9	.78	.77	.67	.75	.84	.....	.....	1.03	.67	1.00	1.00	.....	.95	1.05	1.00	.82
27–27.9	.81	.79	.69	.77	.86	.....	.....	1.05	.69	1.02	1.02	.....	.97	1.07	1.02	.84
28–28.9	.84	.81	.71	.79	.88	*$0.72	*$0.67	1.07	.71	1.04	1.04	.....	.99	1.09	1.04	.86
29–29.9	.87	.83	.73	.81	.90	.74	.69	1.09	.73	1.06	1.06	.....	1.01	1.11	1.06	.88
30–30.9	.90	.85	.75	.83	.92	.76	.71	1.11	.75	1.08	1.08	.....	1.03	1.13	1.08	.90
31–31.9	.92	.87	.77	.85	.94	.78	.73	1.13	.77	1.10	1.10	*$0.87	1.05	1.15	1.10	.92
32–32.9	.94	.89	.79	.87	.96	.80	.75	1.15	.79	1.12	1.12	.89	1.07	1.17	1.12	.94
33–33.9	.96	.91	.81	.89	.98	.82	.77	1.17	.81	1.14	1.14	.91	1.09	1.19	1.14	.96
34–34.9	.98	.93	.83	.91	1.00	.84	.79	1.19	.83	1.16	†1.16	.93	1.11	1.21	1.16	.98
35–35.9	1.00	.94	.84	.93	1.02	.86	.81	1.21	.85	1.18	.....	.95	1.13	1.23	1.18	1.00
36–36.9	1.02	.95	.85	.95	1.04	.88	.83	1.23	.87	1.20	.....	.97	1.15	1.25	1.20	1.02
37–37.9	1.04	.96	.86	.97	1.06	.90	.85	1.25	.89	1.22	.....	.99	1.17	1.27	1.22	1.04
38–38.9	1.06	.97	.87	.99	1.08	.92	.87	1.27	.91	1.24	.....	1.01	1.19	1.29	1.24	1.06
39–39.9	1.08	.98	.88	1.01	1.10	.94	.89	1.29	.93	1.26	.....	1.03	1.21	1.31	1.26	1.08
40 & Up	1.10	.99	.89	1.03	1.12	.96	.91	1.31	.95	1.28	.....	1.05	1.23	1.33	1.28	1.10

* Minimum price and applies also to purchases of lower gravity.

† Maximum price and applies also to purchases of higher gravity.

[1] Tomball, Raccoon Bend (Deep) and Satsuma.

[2] Includes Amelia, Barbers Hill, Big Creek, Blue Ridge, Clear Lake, Cotton Lake, Esperson, Fannett, Goose Creek, Hankamer, Lovells Lake, Lochridge, Moore, Mykawa, Nome, Orange, South Liberty, Spindle Top, Sugar Land, Thompsons, Webster, Hastings, South Houston and West Beaumont.

[3] Includes Berwick Bay, Bay St. Elaine, Caillou Island, Chacahoula, Dog Lake, Edgerly, Four Isle, Gillis, Grand Bay, Hackberry, Horseshoe Bayou, Iberia, Jefferson Island, Lake Barre, Lake Pelto, Leesville, Port Barre, Starks, Timballer Bay, Quarantine Bay, and Vinton fields.

[4] Anahuac, Dickinson, Gillock, Cedar Point, Fairbanks, Turtle Bay, Hull, Orange, Pierce Junction, Batson, Caplen, Humble, North Dayton, Saratoga, Sour Lake, South Esperson, Spindle Top, West Orange, Thompson (deep), and Raccoon Bend (shallow) fields.

[5] Includes Saxet, E. White Point, Greta, O'Connor, McFadden, Taft, Plymouth and Tom O'Connor fields.

[6] Includes Duval, Jim Hogg, Webb and Zapata counties, Texas, and Heyser and Placedo fields.

[7] Oklahoma Pipe Line and Magnolia schedules.

[8] Includes La Barge, Midway Dome, Dutton.

[9] Also Buckner, Magnolia, Schuler (Jones Sand), Village.

[10] Add 10 cents for Bunkie, Eola, Olla.

Mid-Continent Flat Prices

	Flat Price	Date Posted
Arkansas:		
Big Creek, Dorcheat, McKamie	$0.95	10–17–40
Smackover, Heavy	.73	10–12–38
Louisiana:		
Cotton Valley	1.10	10–17–40
Garden Island	1.24	10–12–38
Gibson	1.04	10–11–38
Lafitte	1.04	10–12–38
Rodessa, Shreveport	1.05	10–17–40
Texas:		
Cayuga	.78	10– 2–39
East Texas	1.10	10–12–38
Talco	.65	10– 2–39
Livingston, Cleveland	1.10	10–12–38
Van	.93	10–12–38
Pettus	1.29	10–12–38
Pecos County	.78	10–12–38
Pecos Shallow	.65	10–12–38
Luling	.87	10–12–38
Lytton Springs	.99	10–12–38
Salt Flat, Darst Creek, Hilbig, Carroll, Clark and Zoboroski	.96	10–11–38
Flour Bluff-Jim Wells Co.	1.23	10–11–38
Guerra	1.06½	5– 8–39
Seabreeze, Willow Slough, La Belle, Hardin, S. China	1.10	9–14–39
Clay Creek	.85	10–13–38
Conroe	1.27	10–11–38
Long Lake	1.08	10–19–38

Middle West Prices

Lima, Ohio	$0.90	10–13–38
Illinois, old fields	1.00	8–23–40
Illinois Basin	1.15	8–21–40
Lake Centralia-Salem, Illinois	1.15	8–21–40
Princeton, Indiana	1.00	8–23–40
Sw. Ind.-Se. Ill.; N. Griffin, S. Griffin, Phillipstown, New Harmony, Storms, Iron	1.15	8–21–40
Western Kentucky	1.05	8–21–40
Birk City, Western Kentucky	1.05	8–21–40
Kentucky River, Eastern Ky.	1.20	8–21–40
Big Sandy River, Eastern Ky.	1.12	8–21–40

Michigan Prices

	Flat Price	Date Posted
Central (Basin):		
Porter, Greendale, Crystal, Wise, Midland, Vernon	$1.22	1– 2–41
Buckeye, Edenville, Bentley, Beaverton	1.20	1– 2–41
Freeman, Sherman, Redding	1.17	1– 2–41
Arenac, Ogemaw, W. Branch	1.02	1– 2–41
Southwest (Shallow):		
Allegan, Kent, Van Buren	1.23	1–16–41
Monroe Co.: Trenton line	1.17	1–16–41
Adams–Arenac	1.05	1– 2–41

Rocky Mountain States Prices

Colorado:		
Canon City, Ft. Collins, Wellington, Moffat and Florence	$ .90	10–11–38
Iles, Light	.98	10–11–38
Iles, Heavy	.92	10–11–38
Montana:		
Cat Creek	1.10	10–11–38
Cut Bank	1.00	1– 1–40
Sunburst	.80	1– 1–40
New Mexico:		
Artesia	.77	10–11–38
Hogback	1.00	10–11–38
Wyoming:		
Big Muddy	.98	10–11–38
Byron	.55	10–11–38
Dry Creek	.92	10–11–38
Elk Basin	.90	10–11–38
Frannie, Light	.55	10–11–38
Frannie, Heavy	.42	10–11–38
Garland	.50	10–11–38
Grass Creek, Light	.90	10–11–38
Grass Creek, Heavy	.40	10–11–38
Hamilton Dome	.35	10–11–38
Lance Creek	.77	10–11–38
Mill Creek	.72	10–11–38
Oregon Basin	.40	4–20–40
Osage	1.30	10–11–38
Poison Spider	.59	10–11–38
Rock Creek	1.00	10–11–38
Tensleep	.646	10–11–38

Eastern States Prices

	Flat Price	Date Posted
Bradford-Allegany	$2.30	1–27–41
Sw. Pa. Pipe Line	1.95	1–27–41
Eureka Pipe Line, W. Va.	1.89	1–27–41
Corning Grade, Ohio	1.12	11– 4–39
Buckeye Crude, Ohio	1.55	7–12–40

Major Price Changes

	Penna. Grade	Mid-Cont. (36 Gr.)	Calif. (26 Gr.)
Sept. 6, 1933	Up 10	Up 10	Up 15
Sept. 8, 1933	.....	Up 15	.....
May 1, 1934	Up 10	.....	.....
Nov. 6, 1934	Cut 25	.....	.....
Dec. 6, 1934	Cut 25	.....	.....
Jan. 4, 1935	Up 15	.....	.....
Feb. 4, 1935	Up 15	.....	.....
May 16, 1935	Cut 15	.....	.....
June 26, 1935	Cut 15	.....	.....
July 16, 1935	Cut 10	.....	.....
Aug. 29, 1935	.....	.....	Cut *1
Sept. 6, 1935	Up 5	.....	.....
Oct. 29, 1935	Up 15	.....	.....
Nov. 1, 1935	.....	.....	Up *28
Nov. 18, 1935	Up 15	.....	.....
Dec. 6, 1935	.....	.....	Up *9
Jan. 9, 1936	.....	Up 10	.....
Jan. 13, 1936	Up 15	.....	.....
Mar. 7, 1936	.....	.....	Up *18
Dec. 28, 1936	Up 12	.....	.....
Jan. 28, 1937	.....	Up 12	.....
Feb. 24, 1937	Up 10	.....	.....
June 7, 1937	Up 15	.....	.....
Sept. 1, 1937	Cut 22	.....	.....
Oct. 12, 1937	Cut 25	.....	.....
Dec. 1, 1937	Cut 15	.....	.....
Mar. 7, 1938	Cut 17	.....	.....
June 13, 1938	Cut 25	.....	.....
Sept. 1, 1938	Cut 12	.....	.....
Oct. 11, 1938	.....	Cut 20	.....
Jan. 21, 1939	Up 12	.....	.....
Feb. 2, 1939	Up 8	.....	.....
Mar. 6, 1939	Up 12	.....	.....
Oct. 6, 1939	Up 25	.....	.....
Nov. 1, 1939	Up 15	.....	.....
Dec. 1, 1939	Up 10	.....	.....
Jan. 1, 1940	Up 25	.....	.....
Feb. 1, 1940	.....	.....	Cut *7
May 22, 1940	Cut 25	.....	.....
June 18, 1940	Cut 25	.....	.....
July 12, 1940	Cut 25	.....	.....
Aug. 28, 1940	Cut 15	.....	.....
Nov. 12, 1940	Up 15	.....	.....
Dec. 17, 1940	Up 15	.....	.....
Jan. 27, 1941	Up 15	.....	.....

* Signal Hill 26 gravity.

Crude Production Taxes

In all states other than Texas, levies are severance taxes, collected in lieu of all other taxes, with exception of small special assessments made in Louisiana and Oklahoma, as shown below.

In Texas, any political subdivision as well as the state has power to tax, and state itself levies special taxes in addition to gross production tax, as shown below.

Arkansas—2.6 percent of gross market value.

California—.66443 mills per barrel of oil produced and 17.39 cents an acre on proved lands.

Louisiana—From 4 to 11 cents a barrel, depending upon gravity, average being 7⅞ to 8 cents; in addition, special taxes may be levied on well equipment, bringing total tax to average around 8⅝ cents a barrel.

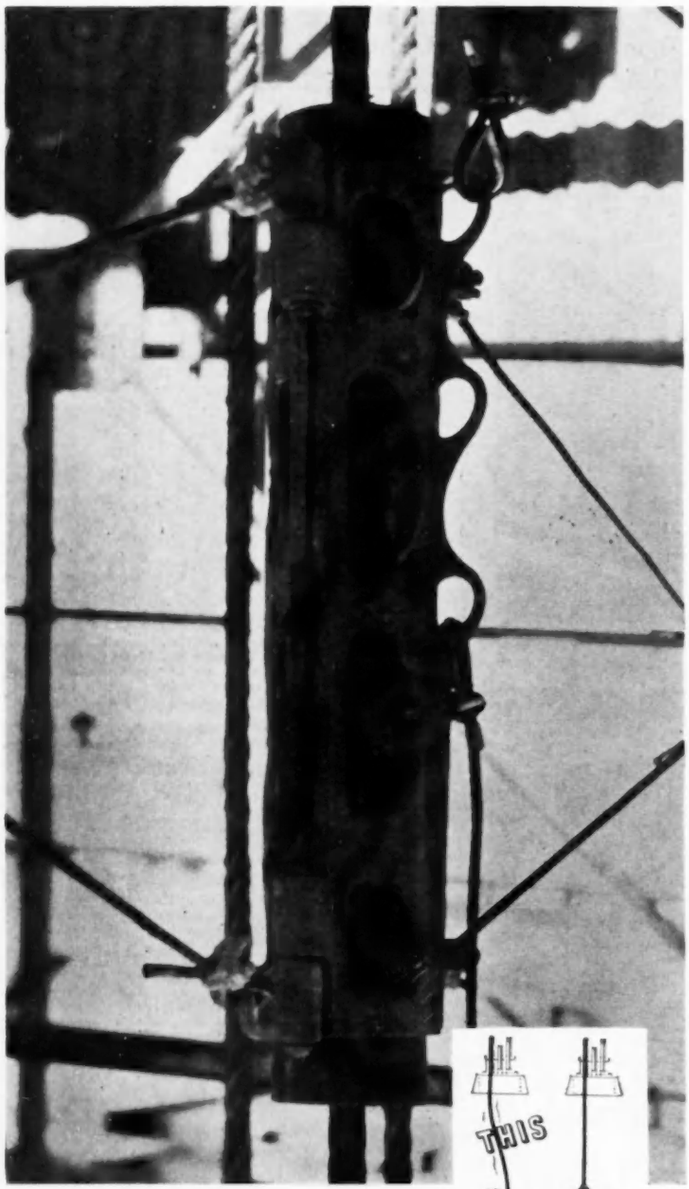
Montana—Two percent of gross value at well and ⅝ of 1c per barrel.

New Mexico—Severance tax of 2 percent on oil and gas.

Oklahoma—Five percent of gross value less royalty interests; in addition, surplus warehouse stocks may be taxed by counties.

Texas—Gross production tax is 2⅝ cents a barrel or 2⅝ percent, whichever is higher, and averaged 2.94 cents in 1939. In that year, total tax on average barrel produced was, however, 9.23 cents, having included following levies: gross receipts 0.14 cents, regulatory 0.19 cents, state ad valorem 0.98 cents, other state taxes 0.62 cents, and local ad valorem 4.30 cents.

Wyoming—Production tax based upon state and county assessments.



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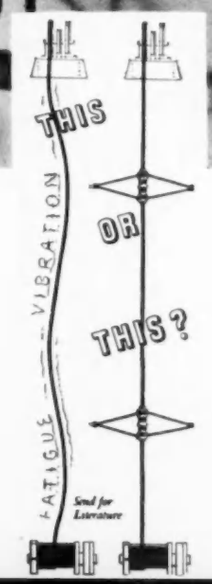
WIRE LINE WIPERS



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Texas Company to Look at Salem Wilcox, Then Plug Back

The Texas Company last week began drilling for the St. Peter (Wilcox) sand in Tate 21, NE NW NW 5-1n-2e, in the south part of the Lake Centralia-Salem field, recently discovered productive in Trenton lime. The company announced the test topped the Trenton at 4514 feet, and said it was the last information that would be divulged. Regardless of findings in the St. Peter, the venture will not be produced from the previously untested horizon but will be plugged back to the Trenton, providing that formation yields sufficient saturation.

Tate 21 is only a few feet from the discovery well of the pool, the company's Tate 1, and was drilled below 4300 feet several months ago but then plugged back and completed in the Devonian. After Paul Rossi drilled his Brooks 8, 1½ miles north in Section 29-2n-2e, to the Trenton, The Texas Company re-entered Tate 21, and it was generally assumed the well was to drill to the Trenton.

Rossi's Trenton producer was still not a completion and has been beset with pumping difficulties. It is bottomed at 4616 feet. There are 20 other Trenton operations in the immediate area of Brooks 8, deepest of which is Magnolia Petroleum Company's Sam Shanafelt 32, an offset, drilling at 4470 feet, with the Trenton top expected at about 4506 feet.

A Mt. Carmel townsite boom was indicated when saturation was recovered in the first test in the city limits, Jordan and Hall's Alice Canedy 1, NE 20-1s-12w, Wabash County. Casing was set to test McClosky lime after oil shows were found in the Biehl, Cypress and Rosiclare formations. There has been considerable development just north of the city where the McClosky lime recently was discovered productive.

Unexpected developments occurred in White County's new productive area, the South New Harmony pool, where Benedum-Trees cemented casing to Benoist sand at Hattie Golden 1, NW NE SE 29-5s-14w, one location south of the discovery, completed in Waltersburg sand. Golden 1 carried no commercial show in the Waltersburg, and was drilled into the Benoist where saturation was found at 2818-34 feet. North and east of the discovery 1¼ miles, Bell Brothers were testing Tar Springs saturation in Morris 1, SW SW NW 28-5s-14w, where only a light show was found in the Waltersburg.

A rank wildcat in the extreme southern part of the state, Benedum-Trees Cavitt 1, SW SW NW 24-11s-3e, was drilling in McClosky lime at 2295 feet, but had found no saturation. However, light shows were found in both the Benoist and Aux Vases. The Benoist show was at 1837-43 feet, but on a drill-stem test only a scum of oil was recovered.

A Jefferson County wildcat, Whisenant and Trenchard's Grant 1, NW NW SW 29-3s-3e, five miles south of Mt. Vernon, was being abandoned at McClosky depth.

A Franklin County wildcat, four miles south of Benton where production recently was discovered in the Tar Springs, E. S. Adkins' Orient 1-B, SE SE NW 12-7s-2e, was given an 8-quart shot after a barrel of oil an hour was recovered during bailing operations. Casing was set at 2052 feet. There is still but one producer in the Benton field, four miles to the north, opened a few weeks ago by Adkins.

Exchange Oil Company was slated to abandon Silliman 1, SW NW NW 35-3s-5e, east offset to the Dahlgren pool discovery of Hamilton County, bottomed through the McClosky. Two drill-stem tests were made, but operators failed to get a commercial show. A location south of the discovery, completed as a 350-barrel well, Earl Witt's Gage 1, NE SE NE 34-3s-5e, was drilling at 1700 feet.

Second producer in the new McKinley pool of Washington County is Joe Murphy's Braemier 2, SW NW NE 29-3s-4w, east of the discovery, which was showing for a 150-barrel Benoist well. Bottom of the hole is 1044½ feet. The well was being given a pumping test. One location south of the discovery, W. C. McBride, Inc., was drilling plug in Frieman 2, NW SE NW 29-3s-4w, where casing was set at 998 feet to test Benoist. McBride's Frieman 3, diagonal offset to Murphy's test, was drilling at 880 feet, and Murphy was rigging up for Braemier 2, SE NW NE 29-3s-4w.

Frank Hinkle's Gibson 2, west offset to the discovery well of the Mason townsite pool, Effingham County, NW SE NW 22-6n-5e, was abandoned. A drill-stem test at 2493 feet failed to show any oil. Total depth was 2546 feet.

Starts Include Wildcat on Outskirts of New Harmony

East of New Harmony ¼ mile, Posey County, C. A. Lynch and Harry Lewis were moving in rotary to spud New Harmony Realty Company 1, NW NW NW 6-5s-13w, a wildcat which, if successful, is expected to set off a town-lot play in New Harmony.

Six miles south of New Harmony, The Carter Oil Company's Ed Highman 1, SW SW SE 31-5s-13w, appeared dry in the McClosky, and was deepening below 2965 feet. With surface elevation of 411 feet, test topped the West Frankfort at 272 feet, Providence lime, 385 feet, Palestine sand 1963 feet, with saturation cored at 1971-79.5 feet; Menard 2018 feet, Glen Dean 2298 feet, Golconda 2412 feet, Barlow 2535 feet, Cypress 2559 feet, and Bethel 2703 feet. St. Genevieve series was topped at 2804 feet.

Five miles north of Highman 1, Gulf Refining Company's Jim Burrows 1, SW NW SW 8-5s-13w, was drilling at 2180 feet, with no shows reported.

In Spencer County, about three miles south of Rockport, Mrs. Doris McPherson's Rosa Nichols 1, SW NW NW 10-8s-6w, was underreaming to set 6⅝-inch casing to a promising show in the Barlow sand at about 1000 feet.

Oklahoma

One Gas and Two Oil Strikes Completed

Three discoveries were completed in Oklahoma the past week, two in Okfuskee County and one in Seminole County. Two wildcats were testing for commercial production, while a new horizon was opened in Southeast Braman pool, Kay County.

Weldon Hall et al's Jackson 1-A, C N½ NE SE 14-7n-7e, two miles southwest of Wewoka pool and 2½ miles north of Fish pool, Seminole County, swabbed 96 barrels in 24 hours after shooting Booch sand at 3168-3192 feet with 40 quarts. At 3189 feet, swab recovered 60 barrels in 12 hours, and deepening to 3192 feet failed to increase production, swabbing 72 barrels in 24 hours. Operators were rigging up pump to complete.

Deep Rock Oil Corporation et al completed Davis 1, SW SE NE 20-11n-9e, north of East Cromwell pool, Okfuskee County, for 58,284,000 feet of gas and 60 barrels of distillate in 24 hours. Hunton lime was topped at 3871 feet, perforated with 40 shots at 3916-60 feet, and treated with 2000 gallons of acid. Rock pressure was 1500 pounds per square inch. The wildcat was formerly operated by Fred Coogan of Sayre, who drilled it to 4192 feet in Second Wilcox sand. Hole filled 1300 feet with salt water in two hours in this horizon. Deep Rock Oil Corporation took over and plugged back to 3986 feet to complete.

Keener Oil & Gas Company et al completed Dudgeon 1, NE NE SW SE 36-12n-9e, 1½ miles north of Okemah, Okfuskee County, flowing 669 barrels of 35-gravity oil in 24 hours through a ⅜-inch tubing choke. Gilcrease sand was topped at 3078 feet, and shot with 53 quarts at 3084-3110 feet. Sinclair Prairie Pipe Line Company has connected. Located on a 25-acre unit, it found Cromwell sand dry at 3284-3320 feet, and operators plugged back to 3113 feet for testing.

National Union Oil & Gas Company, Blackwell, may have a Wilcox sand strike, south of Dilworth pool, Kay County. Long 1, NWc 29-28n-1e, in a shallow gas area, was deepened from 1670 feet to top Wilcox sand at 3375 feet, and penetrated to 3377½ feet before tools were lost in hole. A liner was run past tools, but operators had trouble drilling out shoe. On fill-up rate, it was estimated at 100 barrels per day. Liner

was finally fished out and tools were cemented off. Swab recovered 18 barrels in 6 hours. Hole may be deepened slightly before completion.

Two miles north of Spring pool, Jefferson County, Johnson Drilling Company et al's Bound 1, SE SE NE SW 13-6s-6w, tested 10 barrels of oil and 150 barrels of water per day. Sand with show of oil was logged at 1842-50 feet, and core at 1850-55 feet, recovered five feet of oil sand with light show of water. String of 6⅞-inch casing was cemented at 1745 feet, but a recement job will be required to shut off water intrusion.

New Horizon for Southeast Braman

Tide Water Associated Oil Company opened initial Arbuckle lime production in Southeast Braman pool, Kay County. State 2, CSL SE NW SW 16-28n-1w, flowed 475 barrels of oil through 2½-inch tubing in 24 hours on completion test. Arbuckle lime was topped at 3637 feet, and drilled to 3665 feet. Other wells produce from Second Wilcox sand.

W. A. Delaney, Jr., and Atlantic Refining Company completed Clark 1, NEc SE 30-8n-7e, strike between Little River and East Little River pools, Seminole County, which flowed 364 barrels of 41.5-gravity oil in 24 hours through casing and tubing. It was pinched to eight barrels per hour. Wilcox sand was logged at 4272-89 feet. Gas gauged 1,000,000 feet per day. The operators have 720 acres surrounding the discovery, which is bounded by dry holes to the north, northeast and south.

Bryan Petroleum Company et al will test for initial Wilcox-sand production in West Arno pool, Creek County, at Deere 1-A, NE SE NE 34-14n-7e. Sand was topped at 3964 feet, saturation cored to 3971 feet, and 7-inch casing was cemented at 3939 feet. Two other wells produce from Prue sand around 2600 feet. Location is on a 640-acre communitized block for Wilcox sand, although shallow horizon is not communitized.

Leader Oil Company's Vernon 1, NE SE NW 30-19n-8e, deep wildcat test in northeast end of shallow Drumright pool, Creek County, drilled 381 feet of Mississippi lime to structurally lower the test. Lime was topped at 2910 feet and based at 3291 feet. Wilcox sand was absent, and bit was rotating below 3575 feet in the Hominy series. Small oil shows were encountered in Red Fork at 2623-45 feet, and in Bartlesville sand at 2718-31 feet.

Portable Drilling Company's Conway 1-A, NEc 1-23n-2w, two miles southwest of South Tonkawa pool, Noble County, topped Mississippi lime at 4555 feet and was fishing at 4722 feet in that formation.

Gulf Oil Corporation's Grace Hess 1, C NE NW 33-23n-13w, Woods County wildcat southeast of Galena, topped lower Wilcox sand at 8261 feet and was shut down at 8367 feet for mechanical trouble. No commercial shows had been encountered. Log shows Lower Layton topped at 5740 feet, Checkerboard 5885 feet, Oswego 6150 feet, Chester 6570 feet, trace asphalt 6991-97 feet with a show of asphalt stains in holes to 7090 feet, top Kinderhook 7540 feet, Woodford 7720 feet, Hunton 7726 feet, Sylvan 8030 feet, Viola 8040 feet, and Simpson 8055 feet. Same company's Krieger 1, C E½ NE SW 3-2n-5w, wildcat west of south Knox pool, Stephens County, was rotating below 4800 feet in broken sand and shale without shows.

Kansas

Small Stafford Pumper Provides Year's First Pool

Derby Oil Company, Comanche Drilling Company et al provided the state's first 1941 discovery with Roach 1, NWc SE 12-22-14w, 6 miles west of Drach pool, Stafford County. Arbuckle lime was topped at 3747 feet, fair saturation with medium porosity cored at 3750-53½ feet and 4½-inch casing cemented on top of pay, and standard tools used to deepen to 3787 feet. Arbuckle was treated with 1000 gallons of butane, and then acidized with 1000 gallons. On pumping potential, it rated 128 barrels of 26-gravity oil per day. The Kansas Corporation Commission designated the strike as Seward pool. Upper log shows Lansing lime topped at 3425 feet, Oolitic zone at 3580-88 feet with fair to poor porosity plus a show of dead oil, Sooy Conglomerate topped at 3697 feet, Viola lime 3698 feet and Simpson shale at 3707 feet.

Harbar Drilling Company et al's Hixenbaugh 1, SE NE NE 1-6s-21w, a mile south of Ray pool but across the line in Graham County, missed both Reagan sand and Arbuckle lime. Granite Wash was topped at 3529 feet, and with bit below 3540 feet, good shows of oil and gas were reported.

Trapp pool was extended south at Earl F. Wakefield et al's Miller 1, NEc SE 17-16-13w, which filled 2700 feet with oil. Hole was bottomed at 3401 feet in Arbuckle lime. Magnolia Petroleum Company extended Kraft pool ¼ mile west at Reimann 1, CSL SE SE 4-17-11w, which established draw-down potential of 4358 barrels in 24 hours from Arbuckle lime, topped at 3289 feet and penetrated to 3297 feet. Sam Schneider extended Keesling pool, Rice County, at Miller 1, C W½ SW NE 9-20-9w, pumping 537 barrels of oil in 24 hours with 3 percent water from Arbuckle lime at 3226-56 feet, treated with 3000 gallons of acid.

Hannum Drilling Company et al completed a semi-wildcat in Otis gas pool, Barton County, at Skolaut 1, NWc NE 27-18-15w, on the east edge of production and east of Bird oil pool. Openflow tested 23,000,000 feet per day from Basal sand at 3448-3500 feet.

Willis S. Hartman et al's Dresback 1, C E½ SE NE 7-21-6w, between East Wherry and Welch pools, Rice County, perforated Conglomerate pay at 3512-27 feet for a 1000-barrel fill-up. Hole was swabbed down and operators will deepen to increase production.

Johnson & Piggott et al's Beran 1, C E½ NE NE 24-17-12w, 2½ miles southeast of Wondra pool, Barton County, proved uncommercial in Lansing-Kansas lime at 3116-21 feet, swabbing 40 barrels of 39.5-gravity oil and 40 barrels of water per day. Casing was cemented at 3136 feet, and hole was being deepened to Arbuckle lime.

Forest City Basin

New Starts Include Nebraska Wildcat Near Kansas Line

Barnsdall Oil Company and Helmerich & Payne spudded Erickson 1, C SW SW 8-1n-23w, wildcat near Beaver City, Furnas County, Nebraska, and offsetting Norton County, Kansas, to the north. A block of 1600 acres has been assembled. Contract depth is Arbuckle lime, or 3500 feet. The test is only four miles across the Kansas state line.

Twenty-two miles northeast of Falls City pool, Richardson County, McNulty & Bass et al's Cander 1, SW NW SW 15-2n-13e, based Kansas City lime at 1197 feet, topped Mississippi lime 1789 feet, Hunton at 1908 feet, and set 5-inch casing at 2600 feet. An electric log showed saturation in Hunton and Viola limes.

In Otoe County, Nebraska, John Findeiss & Ziegler et al's Ritter 1, C NE NE 26-7n-12e, had cellar and pits. Garretson & Knisley et al's Bankers Life 1, C SW SW 30-3n-16e, 1¼ miles east of Shubert pool, Richardson County, was moving in light rotary rig.

Pioneer Oil Company et al plugged Hough-Hill 1, C SE SW 6-1n-16e, a mile northwest of Falls City pool, in Hunton lime at 2506-14 feet. Same firm's Boice 1, NE NW NE 18-1n-16e, pumped 150 barrels of oil in 24 hours. Hunton lime was topped at 2269 feet, and penetrated to 2278 feet.

Turner & Leiker abandoned location for Keichel 1, NEc SE 4-5n-13e, wildcat in Nemaha County.

Palensky Brothers et al's Kalous 1, C SW SW 5-2n-13e, Richardson County, reported saturation in Viola at 1591 feet, and will test the show. J. N. M. Oil Company staked location for Bugner 1, NE SE NE 31-1n-16e. The Ohio Oil Company staked location for Sandrock 7, NW NE SW 20-1n-16e, Falls City pool. I. T. I. O. Company staked third test for Shubert pool, Schaible 2, a southwest diagonal offset to the discovery. A north offset was dry.

In Taylor County, Iowa, Smythe McLaughlin and Comfort's Hook 1, C NE NW 18-69n-35w, lost original hole at 1100 feet, skidded rig 75 feet east, and was drilling below 700 feet in new hole. J. B. Barnes, Johnson et al's Lucas 1, SW NE SE 28-70n-43w, Fremont County, topped Hunton lime at 1095 feet, penetrated lime 2 feet, and shut down to clear titles. F. E. Hunt et al's Fee 1, C SE SE 11-78n-30w, hasstuck drill pipe at plug-back depth of 1448 feet. Hole was carried to 1555 feet.

In Northeastern Kansas sector of Forest City Basin, McAlpine et al's Tyler 1, NE SW SW 4-3s-15e, Brown County, reported a hole full of water at 810-60 feet, but was drilling below 1025 feet. A. C. Bumpus and S. B. Hibbard et al's Achten 1, C S½ SE NW 12-4s-14e, was shut down for orders at 1992 feet. Olson Oil Company and McCole's Anedrson 1, C N½ SW NW 1-8s-7e, Pottawotomie County, topped Lansing lime

at 930 feet, and was shut down at 1195 feet.

McCain & Sherrod et al's Green 1, SWc NW 9-11-19e, Leavenworth County, Kansas, based Hertha sand at 775 feet, and was shut down at 1200 feet. McLaughlin & Sons et al's Thorp 1, C NE NE 27-10s-20e, 3½ miles south of McLaughlin pool, Leavenworth County, logged a small show of oil and 70,000 feet of gas at 1359-60 feet, topped Mississippi lime at 1395 feet, and based the formation at 1742 feet, topped Hunton lime at 1793 feet, cemented 6-inch casing at 1783 feet, topped Viola lime at 1965 feet, and Wilcox sand at 2088 feet. Bit was rotating below 2125 feet.

McCain, Sherrod et al's Doan 1, C E½ NW SE 34-12-22e, deepened to top Simpson at 1575 feet, Wilcox at 1590 feet, and set 5-inch casing at 1690 feet to test a small show of oil at 1695 feet.

North Texas

Griffin Extension Well Starts Competitive Drilling Activity

The Griffin deep-lime pool, northwestern Archer County, is entering a period of competitive drilling as result of the completion of another prolific well in the east extension sector. Jack E. Kadane, Trustee's Griffin 2-A, NE SE SE Section 13, Palo Pinto School Lands, flowed 356 barrels of oil natural in 4 hours while running tubing to complete from Strawn at 4341-53 feet. This well is 1100 feet east of the operator's Griffin 1-A, which stirred up a spirited lease play last November in recording an initial flow of 1033 barrels of 41.5-gravity oil through ½-inch tubing choke from sandy lime at 4337-51 feet. The latter extended the area 4000 feet east of 2 offset deep wells completed in March and June, 1939, by Eph Griffin and Deep Oil Development Company. Failures to the north and south of the wells on the discovery block spiked interest until the Kadane strike.

Deep Oil Development Company et al's Griffin 1, NE SE SW Section 13, has been started as an intermediate test. Eph Griffin's Fee 1, NW NW SW Section 14, and Petroleum Producers Company et al's Neilson-Lynch 1, SE SE SW Section 20, are seeking northeast extensions toward K-M-A field's Strawn production. Phillips Petroleum Company spent a large sum for leases around the Griffin extension sector, and is due to start development immediately. Stanolind Pipe Line Company serves the area with a 6-inch gravity line extension from its K-M-A field station. Consolidated Oil Company et al authorized the drilling of Humphrey 1, southwest corner of E. B. Heath Survey, A-176, being 2½ miles east of the area.

King Oil Company et al's Taylor 1, Archer County wildcat between the Hull-Silk and Mankins areas, failed to produce when tested in Ellenburger at 4963-5055 feet. Hole was plugged back to perforate opposite saturation in Mississippian, topped at 4929 feet, and Bend saturation at 4672-96 feet is also due to be tested. Walter Gant and Barney Feagin's Jane Curry 1, 1¾ miles southeast of the Vogtsberger pool, yielded small volume of oil with drilling fluid on preliminary test of Ellenburger section at 5370-91 feet. Small shot of nitro preceded treatment with 3000 gallons of acid.

Shell Oil Company's H. Henderson 8 expanded production in the Antelope deep pool, southwestern Clay County, to the south with an initial rating of 276 barrels from Strawn saturation at 3158-3218 feet. The test was carried to 3245 feet, then perforated the 4½-inch pipe. The company's L. S. Wright 1, south offset to the above well, was awaiting test with 4½-inch pipe at 3581 feet, or 9 feet off bottom. It is due to test nominal saturation in the lower pay at 3415-39 feet and 3506-52 feet, but the best prospects are from sand at 3162-3215 feet. Operations are underway on Shell Oil Company's Coleman 1-A, northeast corner Block 24, Calhoun County School Lands, to meet a 5500-foot depth contract. The test is 4 miles north by west of Omohundro-Youngblood & Foree's Wynn 1, abandoned last September in Simpson at 6546-6654 feet. E. C. Norwood Estate-King Oil Company et al's Hapgood 3, about ¼-mile east of production in the Hapgood 3-well pool, was coring at 6200 feet with intermittent shows in conglomerate beds. It failed to produce in the regular pay, and yielded salt water in using tester at 6111-15 feet.

Bonita Well Sets New Record

Sinclair Prairie Oil Company's Howard 6, an inside test for the Bonita pool, Montague County, set a new potential record for the Bend conglomerate zone in flowing 518 barrels oil in 2 hours on preliminary gauge, and 764.48 barrels on 3-hour proration test for an initial rating of 6116 barrels. The gas volume was estimated at 2,225,000 feet daily. Production is from conglomerate at 5237-57 feet, with 7-inch pipe at 5235 feet. The company's Gilbert 2, northwest edge of production, was idle at 5577 feet after disappointing drill-stem tests in the regular pays at 5296-5310 feet and 5442-57 feet.

Sinclair Prairie Oil Company's Hawkins 1, second test for its wildcat block in northwestern Montague County, centering 2 miles southeast of Ringgold, was drilling at 5790 feet, having recovered 1620 feet of water when tester was used at 5687-5702 feet in conglomerate section of Bend, topped at 5606 feet. The latter marker is 50 feet lower than in the company's Milam 1, located 1 mile southwest, which quit in barren Ellenburger at 5795-6000 feet.

Amon G. Carter et al's Allen 1, western Denton County wildcat and the deepest in the district, was drilling Simpson, or middle Ordovician, at 8805 feet. This test encountered Viola lime, which was not believed to be present in the Fort Worth Syncline. No shows have been recorded in either of the Ordovician zones, while lime formation predominates in the Simpson. It is due to proceed to the Ellenburger horizon.

Plugging orders were issued for Britt Cranfill-C. E. Rodgers' McKay 1, northwestern Wise County wildcat, as result of hole being junked while trying to install liner to test possible production in Mississippian and Simpson after plugging back from 7154 feet. In Tarrant County, Bruce Sullivan et al's Putman 1 was drilling at 6695 feet on new depth contract.

South extension for the Fargo pool, Wilbarger County, is to be sought by Amerada Petroleum Corporation in starting Folley Unit 1, SW SW H&TC Section 36, Block 15. The company recorded its eighth producer in completing A. J. Folley 2 for a natural flow of 73.14 barrels oil on 3-hour gauge through ½-inch choke from Cisco sand at 3190-3238 feet, with the hole bottomed in shale at 3239 feet.

Fain-McGaha Oil Corporation's Griffin 2-B, ¼ mile north of its Ellenburger lime discovery in the K-M-A field, was awaiting swabbing test of Ellenburger saturation at 4298-4322 feet, with 7-inch pipe at 4296 feet. Top of the Ordovician dolomite is 23 feet higher than the discovery. The company plans to drill Griffin 1-A, 2-A and 3-B to this deep horizon.

West Texas

North Pecos County Tests Holding Operators' Interest

Magnolia Petroleum Company's Markey 1, deepest of five operations in the Abell pool, Northern Pecos County, was drilling at 5250 feet in shale and lime beds of the Simpson, topped at 4800 feet, or 2409 feet sub sea. The Simpson section is 46 feet low when correlated with the discovery, situated ½-mile to the southeast, and is 19 feet lower than McKee 1-A, a failure ⅞-mile north by west. The discovery produces from broken pay at 5270-5357 feet, with an elevation of 2392 feet.

Progress on the exploratory tests in the Abell area is being followed closely, as numerous short-term leases will be drilled if the productive limits embrace the territory under development. Substantial bonuses were recently paid by Stanolind Oil & Gas Company and Phillips Petroleum Company for close-in leases. Magnolia Petroleum Company's State - Sharp 1, 1⅓ miles northwest of the discovery, was drilling at 4280 feet, and State-Baldwin 1, 1⅝ miles north by west of the producer, was drilling at 3720 feet. Separate tests by George Abell and Phillips Petroleum Company were drilling at shallow depths.

Gulf Oil Corporation's W. N. Waddell 17, C E¼ of E¼ H&TC Section 15, Block 3, Crane County wildcat and on a strike between Ordovician production in the Sand Hills and Abell areas, was drilling at 2590 feet. Top of Yates was called at 1297 feet, with an elevation of 2463 feet. This marker is credited with being 215 feet higher than Moore Brothers et al's Barnsley 1, located 2¾ miles to the east. The latter logged top of Simpson at 6268 feet, with an elevation of 2472 feet, and was abandoned at 6829 feet. Acreage along the Sand Hills-Abell strike has been in demand for some years.

Culbertson & Irwin's Heiner 1, Pecos County wildcat on the south end of the Pecos Valley district, yielded a small vol-

ume of oil with water after using 1500 gallons of acid in broken Ellenburger saturation at 5390-5541 feet, having plugged back from water at 5659-65 feet, and was awaiting results of second treatment with 8000 gallons of acid.

Roeser-Pendleton et al's Hays 1, ¼-mile north of the Quito-Slack gas-distillate discovery in Ward County, missed the prolific gas flow from the Upper Delaware, and was coring at 5150 feet. It is due to continue to the 5200-foot level, then run electric formation survey and a drill-stem test. Oil saturation logged at intervals justifies the landing of pipe for a production test, although it is lower on structure than the producer.

Good Well in Upton

Gulf Oil Corporation's Crier-McElroy 48, SW SE NE Section 198, Block F, Upton County sector of the Gulf-McElroy field, earned a potential rating of 6966 barrels of 32.3-gravity oil, with gas/oil ratio of 1650 feet per barrel, following 630-quart nitro shot at 2646-2862 feet. This prolific well is near the east dip of the structure, and is within ½-mile of wells that have been producing for more than 13 years. The company has carried on continuous development since completing the discovery in July, 1926, and will require a long period of years to drill its proved locations.

The northeast extension sector of the Sand Hills field accounted for another large producer when Gulf Oil Corporation's Waddell et al 18, C SE PSL Section 29, Block 26, flowed 410 barrels of 36-gravity oil in 1½ hours after using 5000 gallons of acid in regular Permian pay at 4495 feet. The initial test was cut short due to the inability of separators and lease tanks to accommodate the heavy flow of oil and gas. On later test the well earned a potential of 5523 barrels oil and 3,416,000 feet of gas.

Extremely hard chert and lime formation encountered by Amon G. Carter's Wasson 4-D, projected Ordovician test for the Gaines County portion of the Wasson field, may force cancellation of plans to drill to 11,000 feet, if necessary to attain the objective. The test was drilling at 10,055 feet (corrected depth) last midweek, averaging less than 5 feet of new hole per day.

Four Lower Permian tests are active near the Andrews-Ector County border. Fuhrman Petroleum Corporation's Lockhart-Brown 1, Andrews County wildcat, failed to produce in the regular Permian, and was drilling at 5560 feet to explore the Clear Fork. Stanolind Oil & Gas Company's Cowden 1-B, Ector County semi-wildcat and a mile west of nearest deep production in the North Cowden field, was drilling at 5510 feet, having tested water at 5199-5230 feet in Clear Fork, topped at 5190 feet, or 53 feet low.

Phillips Petroleum Company has two deep operations underway on its Embar gas prospect, centering upon the Andrews-Ector County line. The company's University-Andrews 1, 1¼ miles northeast of the gasser, was drilling at 5420 feet, while Frank Cowden-Embar 2, ⅞-mile southeast of the gas well, had progressed to 5490 feet. Three of the 6 tests undertaken by the company to forestall lease expirations within its 9400-acre block were halted at shallow depths because of low anhydrite markers. An oil strike for the south portion of its block in Ector County was promised last week when Cowden-Embar 1-A, C SE SE T&P Section 6, Block 44, T-1-N, flowed 25 barrels of oil, plus 14 percent bs&w, daily after 2-stage treatment of broken pay at 4260-4312 feet with 2500 gallons of acid. It is 4 miles north of nearest production in the Goldsmith field, and equal distance west of the North Goldsmith pool.

Completion of a prolific outpost well in the Loving area, Western Stephens County, materially increases the size of the 6-well pool, which extends 2¼ miles east to west, with a mile maximum width. Wittmer Oil & Gas Corporation, Knight & Ewing's H. Compton 1, C SE NE Orphan Asylum Lands Section 12, and a mile west of production, flowed 150 barrels of oil the first 2 hours after using 3000 gallons of acid in Bend lime at 3567-3608 feet. The well later gauged 160 barrels on 1-hour test. The discovery was completed in July, 1939, and pipe-line connection was provided by Humble Pipe Line Company.

The South Carbon 6-well pool, Eastland County, is to be given its first pipeline outlet, thereby relieving operators of the expense of trucking their production to a distant pipe line station. Sinclair Refining Company has authorized installation of a gathering system, and the laying of a 1.8-mile 2-inch discharge line to connect with a 6-inch carrier.

Danciger Oil & Refineries' Abbott 1, ¼-mile east of the McElreath pool discovery, was awaiting orders at 3585 feet. It is slated to be plugged back to try for completion in the Bend, topped at 2960 feet, about level with the original well.

A. P. Heinze et al's Kincaid 1, Coleman County deep lime prospect, has machine on ground preparatory to drilling plugs from 5½-inch pipe at 3625 feet for a test of broken saturation at 3628-47 feet.

Shell Oil Company's Rutherford 1, northwest offset to its Mississippian pay discovery in the Aspermont pool, Stonewall County, was coring at 6080 feet, and apparently missed the regular pay zone. The new test logged top of Strawn at 5167 feet, or 3407 feet sub sea, being 23 feet low.

East Texas

Test of Pittsburg Area Well Fails to Lower Oil Column

Preliminary production test given Gulf Oil Corporation's Venters 1, west offset to the Lower Trinity discovery producer in the Pittsburg area, Camp County, failed to lower the column of oil below the 3500-foot level when swabbed via two-inch tubing. The hole was drilled to 8107 feet, and 5½-inch pipe is at 7841 feet, making it possible to use nitro shot if necessary to attain flowing production. The discovery halted at 8087 feet, and set pipe two feet off bottom for completion through perforations, flowing 156 barrels natural by heads.

Humble Oil & Refining Company and Gulf Oil Corporation's Horton-Dickson 2, fifth gas-distillate producer for the Willow Springs deep area immediately east of the Gregg County portion of the East Texas field, tested 22,000,000 feet of gas, with 10 barrels of distillate per 1,000,000 feet, on open-flow gauge after using 10,000 gallons of acid through perforations opposite Pettit saturation at 7255-70 feet.

Gulf Oil Corporation and Farrell Drilling Company's Bevill 1, Horn Hill prospect, Limestone County, was preparing to perforate pipe opposite Pettit saturation at 4750-4800 feet. This wildcat was drilled to 5520 feet, and when given a retest in Travis Peak at 4923-29 feet yielded 4000 feet of salt water.

Wood County recorded a new wildcat project involving F. R. Jackson and W. C. McGlothlin's S. O. Moore 1, center of 10-acre tract, Joseph Knight Survey, near the townsite of Crow. Steep prices have been paid lately for leases and royalty in the Crow area. Delta Drilling Company and Sells Petroleum, Inc.'s Beckham 1, located near the Haynesville shallow salt plug and 4½ miles northeast of Mineola, is apparently setting a record for low structural position, having logged top of Pecan Chalk at 5069 feet with an elevation of 356 feet. The test was drilling at 5440 feet.

Production test was underway late last week on the third well for the townsite sector of the Hawkins field, involving C. W. Johnston et al's Lynch 1, which logged broken oil sand at 4521-4856 feet, and halted at 4880 feet to complete by perforating casing seated at 4869 feet. Bobby Manziel et al's Bell 2, relief well drilled to check the crater formed by a gas blowout from sub-Clarksville sand at 4363 feet, disproved belief that the Nacatoch sand was charged with escaping gas, and was awaiting permit to continue to the Woodbine. Drill-stem test made in Nacatoch at 2013-2372 feet yielded water, but no gas. A. A. Folsom and Red Iron Drilling Company's Prince 1, located 2350 feet southwest of the crater and on a 10-acre lease, was running 1600 feet of surface pipe late last week.

Applications for permits to drill wells in the Hawkins field as exceptions to the 20-acre spacing rule continue to accumulate by the scores each week. Hearings have been booked by the Texas Railroad Commission at intervals for six weeks hence. This unexpected delay will result in a moderate expension of drilling each week, and is likely to defer the peak level until late spring or about mid-year. The comparatively few operators possession proved leases that embrace a 20-acre unit, or greater, automatically qualify for a permit when well spacing complied with the rules issued January 24. This accounts for the prompt clearance given Humble Oil & Refining Company's projected tests.

W. J. Goldston et al's Osborne-Sun 1-A, located 6600 feet south of townsite production, was drilling below surface pipe landed at 1233 feet. Rig was skidded 1050 feet southwest of original test, which was carried to 1235 feet in expectation of a spacing exception being granted because of flood waters from Sabine River. This outpost will partially determine if production will extend across the river into Smith County.

Johnson et al's Green 1, Woodbine failure drilled in mid January, three miles northeast of townsite production and the same distance east by south of the discovery pumper, was deepened to 5100 feet and abandoned.

Southwest Texas

Finding New Producing Levels In Several Established Fields

Establishment of deeper sands in present fields marked activity along the lower Gulf Coast of Texas last week. Several tests were considered almost certain to uncover new pays. Stratton-Agua Dulce flank in Nueces County was getting most attention. A number of holes were being drilled to a sand series ranging from 6300 feet to 6600 feet. Other development was scattered with from two to six rigs running in the more active fields.

Continental Oil Company's St. Charles 3, east outpost to the St. Charles field in Aransas County, was drilled to 11,472 feet to be the second deepest exploration ever sunk in South Texas. Electric log indicated possible producing sands and 5½-inch casing was set near this level. Late in the week, preparations were being made for a production test at an unannounced level, apparently below 11,000 feet.

Humble Oil & Refining Company was coring below 9600 feet in State 1, Tract 27, of St. Charles Bay, 2 miles northeast of Lamar. It is northeast of the deep production in the Lamar field of Aransas County.

D. P. Neill's W. W. Toland 1, Lot 14, Coleman Fulton Pasture subdivision "A", 2½ miles northeast of Gregory and in San Patricio County, perforated in a sand at 5900-50 feet and was testing. It previously had shown salt water through perforations at 6078-83 feet.

Testing Deeper at Luby

Seaboard Oil Corporation was drilling plugs preparatory to a production test in J. P. Luby 9, deep test in the Luby field, Nueces County. The well originally had been completed at 5068 feet, but was carried ahead to 7311 feet, where it found a sand showing oil, gas and water. Casing was set on bottom and perforations were to be made near the bottom of the hole.

Testing was being continued in the 5900-foot zone in Stanolind Oil & Gas Company's deep operation north of the Riverside field of Nueces County. The well had been plugged back to 6981 feet and perforated above that level. It was making gas, distillate and wash water at last reports.

La Gloria Operators Committee completed another dual sand well to extend the La Gloria field 4800 feet southeast. Arguellez 1 flowed from perforations at 6037-60 feet and 6545-60 feet.

McSpadden Company's Clark 1, discovery of the Coloma field in Calhoun County, in 24 hours flowed 107.61 barrels of 53.7-gravity distillate through ⅛-inch choke under 1700 pounds tubing and 2050 pounds casing pressure. It showed a gas/oil ratio of 4390/1 and no water. Production is from a sand topped at 5887 feet.

Cut Off Water in Lavaca Test

McMurrey Refining Company was ready for a second and higher test in Allen & Miner 1, on the Vienna prospect, east of Halletsville, in Lavaca County, after an initial exploration netted salt water with some oil. The well was drilled last year, but shut in several weeks due to bad weather. Bottomed at 8524 feet, casing was perforated at 8492-8503 feet with 36 shots and a drill-stem test built up 1320 pounds in 40 minutes. Recovery was 1500 feet of fluid, top 130 feet being oil and the remainder salt water.

Salt water apparently was cut off in the 2-mile southwest extension to Ganado field, Colorado County. On a 24-hour production test, W. R. Davis, Inc. recovered 88 barrels of 49.2-gravity amber-colored distillate from Brownson 1-A, Wooley Survey. Flow was through 3/16-inch tubing choke with 1650 pounds working pressure. Casing pressure was 1675 pounds. Perforations had been made at 9423-35 feet in Wilcox.

Starr Extension in Prospect

An extension of nearly 1½ miles north to the Rincon field in Starr County may be effected by Transwestern Oil Company's Cameron 1, Section 137. Hole had been drilled to 5527 feet and electric log indicated possible producing sands. Several side-wall cores recovered sand with oil odor.

Plugs were to be drilled in Dean & Hendrickson's Garcia 1, one mile west of Boyle, Starr County. Hole had been drilled to 3476 feet and casing set on bottom. It found a sand at 2833-60 feet which had an oil and gas showing. Other sands were encountered at 3139-58 feet and 3430-58 feet.

Fidelity Oil & Royalty Company appears to be the discoverer of a new pay in the Boyle field with Standard Trust Company 3-D, which found a zone at 2860-72 feet, and at 2925-40 feet. Perforations were made at 2930-37 feet, and the well was flowing gas and oil.

A second producer was ready to be completed in the Willamar field in Willacy County. Pan American Production Corporation et al's Community 1B was drilled to 8728 feet and casing was set at 8133 feet for completion in the regular 7800-foot sand.

Gas, wash-water, drilling mud and an odor of distillate resulted when Pure Oil Company's Newberry 4, Cameron County, started to flow out of control. Swab was run back into the hole to prevent it from getting away. Hole had been drilled to 8194 feet, then sidetracked to 7750 feet.

New Area in Duval County

Jack Giblin and Gus Tesmelis' Holzapfel 1, Section 178, northwestern Duval County, was opening a new Mirando-sand oil field. Pump was being installed after swabbing failed to lower fluid below 100 feet from the top. It had drilled to 1203 feet and perforations were made at 1088-1100 feet.

Ten miles northwest of Premont, Henshaw Brothers, S. G. Nelson and Argo Oil Corporation's Gonzales 1, Carrera Grant, was still awaiting orders after cementing drill stem at 6308 feet. It attempted to blow out from a Jackson sand at this level.

M. L. Massingill extended the Holbein field of Jim Hogg County 3960 feet north with McLean 1, Section 3. The well was drilled to 2808 feet, finding sand at 2798-2802 feet. On potential test, it pumped 77.71 barrels of oil per day with a small amount of gas.

Dimmitt Well on Production

At Carrizo, Dimmitt County, Producers Corporation of Nevada and W. G. Walton's McKnight-Bennett was given a potential test after finishing as a producer in Navarro sand at 2294½-2298 feet to flow 76 barrels of 30-gravity oil per day through ¼-inch bottom-hole choke. Pressures were 90 to 250 pounds on the casing while flowing and from 90 while flowing to 250 pounds when shut in on the tubing. The well made no water. This is the first production in the county.

A new shallow Navarro sand oil field for Bexar County was possible with Jack A. Tarver et al setting pumping rig at Lamm 1, Luna Survey 3, 2½ miles southeast of Losoya. The well is an old test drilled at 1692 feet. It was recently reworked and perforations made around 1212 feet at the contact of the Midway and Navarro. The well showed considerable oil while being bailed and preparations were made for a pumping test.

Texas Gulf Coast

Chenango Prospect May Be District's First 1941 Field

First 1941 oil field in the Texas Gulf Coast may be at Chenango, central Brazoria County, where J. Newton Rayzor's Christian 1, Wm. Parker Survey, a mile southwest of the townsite of Chenango, on Sun Oil Company farmout acreage, was washed in from perforations above 8600 feet, cleaned, and flowed at rate of 28-30 barrels of 35-gravity oil hourly through ¼-inch choke, with tubing pressure 1200 pounds, casing pressure 1250 pounds. The wildcat flowed at this rate for 4 hours, then made salt water which increased to 20 percent, reportedly due to faulty cement seal, before it was killed for reperforation. The test was drilled tight, and several details are still lacking, although it is known that another promising sand was found which has not yet been tested. The prospect was found in 1935 by Atlatl Oil Company with reflection seismograph, and reshot by Gulf Oil Corporation in 1938. The test is the first for the prospect.

Another critical wildcat was Strake Petroleum Corporation's Griffith 1, Cayce Survey, Brazoria County, three miles souhwest of Alta Loma field, Galveston County, where another attempted blowout and a rainbow of oil on the pits indicated a possible discovery. Frio was topped near 10,288 feet, with the high-pressure formation, registering 6500 pounds, occurring just below this point. Blowout was averted by weighting the mud. Electrolog was run, and 7-inch casing landed on bottom at 10,325 feet. Operators will core deeper after waiting on cement. Frio was the objective of this test, which ran high on upper markers compared with Alta Loma wells, and attempted to blow out from near top of Heterostegina at 8100 feet. Marginulina was topped at 9132 feet, 700 feet lower than Alta Loma, and the

Marginulina interval was apparently 450 feet greater than at Alta Loma.

The Texas Company scored another major extension for the Blessing distillate field, Matagorda County, with completion of Hammond Unit 1, 4750 feet southeast of the discovery, and in Block "C," H&GN Survey A-208. The extension was making normal amount of gas and distillate from regular Frio sand at 8315-20 feet, with 7-inch casing set at 8330 feet. Three weeks ago, the company completed a 4750-foot northeast extension for 125 barrels of 56-gravity distillate daily through ¼-inch choke. The two extensions indicate a small southeast dip. Plans for a recycling plant are reported in formation. Three miles north of the field, Cities Service Oil Company had Duffy 1 below 7100 feet. This test is in J. W. E. Wallace Survey.

Humble Oil & Refining Company persisted in tests of the regular pays at Rowan, Brazoria County distillate area, with no further success. Hubbard 3, north outpost, was plugged to the regular 8500-foot pay. Test at 8550-56 feet recovered gas and distillate under 1700 pounds pressure. Perforations were squeezed and plug drilled out to 8947 feet for a test of the horizon which produces only in Rowan & Nichols and Texas Gulf Producing Company's Bradbury 1. Swab was lost during this test. On initial tests, it made a few stands of gas-cut mud from both 8500- and 8900-foot sands, deepened to 9400 feet, and tested several poor sands in the last 500 feet of hole before plugging to retest the regular levels. The test apparently pegs the north edge of the field.

North American Consolidated Oil Company entered Gulf Coast activity with purchase of 100 acres of the Scanlan estate, east of the Brazos in the North Thompsons field, Fort Bend County, for $55,000 and 1/32 override, from H. C. Cockburn. The company assumed a drilling obligation for five wells to be completed within the year.

Rockland Oil Corporation staked Kountze 1, E. Smith Survey, a Wilcox wildcat in Tyler County, 1½ miles southwest of Rockland field in Jasper County. Four Wilcox wildcats were near or in prospective pays to draw the greatest attention to the trend development in several months. Superior Oil Company seemed most likely to make a well, as it perforated McWhorter 1, T. J. Nichols Survey, seven miles east of Magnolia in Montgomery County, and was swabbing, with no information on results. Wilcox was topped 8465 feet and had several good sands from that point to bottom at 9314 feet, with many of them indicating saturation on electrolog. Casing was set at 9310 feet, and perforations made between 8800 and 8900 feet for test of the best section.

John Deering's Buck 1, Wilcox wildcat three miles southwest of Old Washington, Washington County, drilled to 7000 feet, ran electrolog and deepened in Wilcox. At Cold Spring, San Jacinto County, McDannald Oil Company's U. S. A.-Foster 1, Taylor Survey, drilled to 7500 feet and ran electrolog. Irwin & Muench were near or in the Wilcox as Schoenfeld 1, R. O. Lusk Survey, Grimes County, went below 7300 feet.

At Hillje, Wharton County, The Texas Company made a southwest gas extension, completing Appling 1, Morris & Cummings Survey, for 1,480,000 feet of gas daily via 12/64-inch choke, with tubing pressure 1800 pounds, casing pressure 1900 pounds.

Texas Permits

The Texas Railroad Commission last week issued permits for drilling 267 wells, one less than was authorized the week before.

North Texas led the state with 75 locations, including 18 in Young, 14 in Cooke and 14 in Archer County, while operators in the Panhandle were allowed to drill 19 wells, 10 of which were in Hutchinson County.

There were 20 permits granted in the East Texas field, with 19 in Gregg and one in Upshur County. Eight locations were reported from the remainder of the East Central Texas area.

Permits for drilling 57 wells were authorized in Southwest Texas, including 12 in Jackson and 11 in Nueces County. A total of 26 permits was allowed in the Gulf Coast district.

The commission issued permits for 22 wells in West Central Texas, and 40 locations were approved in the West Texas district.

Ask Monthly Production Basis For Texas Coastal Wells

Humble Oil & Refining Company has requested permission to produce allowables on a monthly basis instead of a daily basis in the Red Fish Reef and Fishers Reef fields in Galveston Bay, Chambers County.

Because wells are exposed to coastal weather, it is difficult to produce them daily, as provided under Texas Railroad Commission orders. However, the company requested that the commission prohibit production of more than twice the daily allowable for any well during any 24-hour period to prevent coning of water into the wells. Shut-down days would be disregarded, but the total monthly production would not exceed commission orders.

Amend League City Rules

The Texas Railroad Commission has amended its operating rules for the League City field, Galveston County, to proration on acreage and per well, with 75 percent allocated on the acreage factor.

A maximum of 30 acres may be assigned to a well.

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Louisiana Gulf Coast

Westwego Prospect Converted To District's First 1941 Field

Westwego prospect, Jefferson Parish, across the river from New Orleans, fulfilled earlier promise and became South Louisiana's first 1940 discovery. Titanic Oil Company's Marrero Land Company 1, Section 2-13s-23e, near the approach to the Huey P. Long bridge, came in flowing 260 barrels of 34.1-gravity oil daily, 2 percent wash water and mud, via 7/64-inch choke, with tubing pressure 1950 pounds, casing pressure 2250 pounds, from 12 perforations at 9838-42 feet. Storage and separators were erected. Bottom of hole is at 10,011 feet, with 5½-inch casing set at 10,001 feet. A sand found at 9940-50 feet had not been tested. The discovery will be accredited to 1941, although production has been a virtual certainty since the well blew out in November, 1940, probably from the lower sand, and made oil at potential rate of 450 barrels daily. The blowout caused a side-tracking job culminating in the official discovery.

Interest and activity in the Westwego area have been high for the past three months, with Phillips Petroleum Company buying acreage, along with independents, at high prices. Discovery acreage was farmed out by Shell Oil Company, who, with Stanolind Oil & Gas Company and Gulf Refining Company, major blockholders, contributed to the discovery. If development veers toward the bridge, a source of contention between various interested parties is inevitable, as the state has already forced Shell Oil Company to relinquish 55 acres because of protests of the Southern Pacific Railroad and insurors of the bridge that development will endanger the structure. Reese Carter is said to have spudded his Fee 1, ½-mile east of the discovery, in Section 3-13s-23e.

Lisbon-Iberia Oil Company's Calcasieu National Bank 1, on the Lakeside prospect, Section 19-12s-4w, northwest of Grand Lake, Cameron Parish, regarded as a probable field opener, was drilling slowly below 10,300 feet with no tests made after drilling out cement. A week ago, the well made 210 barrels of 53-gravity distillate in 76 hours, via various chokes, with tubing pressures varying from 2500 to 3150 pounds, from 10,050-060 feet. The well also logged six other promising sands, but operators elected to deepen from 10,215 to 10,500 feet before further tests.

Also deferred was the probable opening of a new sand at East White Lake, Vermilion Parish, where Union Oil Company of California's Louisiana Land & Fur Company 4, Section 15-15s-1e, 7000-foot northeast extension attempt, was testing late in the week, with no results available. A week ago the well revealed a new sand at 7324-58 feet, flowing 300 barrels of 35-gravity oil daily through 5/32-inch choke, with tubing pressure 1000 pounds. After salt water entry, perforations were squeezed to retest 18 feet higher in the sand. The second well after discovery, the company's Vermilion Parish School Board 1-B, 800 feet east of the discovery, will begin test on a sand at approximately

the same depth over the weekend. This test flowed gas with a small amount of distillate from the discovery sand at 10,512-520 feet, and was plugged back.

Humble Oil & Refining Company abandoned Wilberts & Sons 3-B, Section 78-8s-8e, directional confirmation test of Bayou Des Glaise, 1940 discovery in Iberville Parish. This semi-wildcat bid for a new sand completion when it flowed 10 barrels of 38.2-gravity oil hourly from 7186-90 feet, via 3/16-inch choke. This flow died and after sand at 7120-30 feet produced salt water, the hole was left at plugged-back depth of 7194 feet. The discovery produced from 8648-57 feet for a month, died and was abandoned. The structure is a 14-year-old refraction prospect which probably went into oblivion with the second failure.

Two new sands at Gueydan, Vermilion Parish, are in line for immediate extension. Fohs Oil Company, discoverers, staked Mulvey Irrigation Company 3 in Section 34-11s-1w, 700 feet northeast of the company's Mulvey 2, which opened a new sand a month ago at 9722-42 feet, flowing 400 barrels of 35.4-gravity oil daily through 10/64-inch choke. The company previously made another south flank new sand find in Mulvey 1, which produced 35.4-gravity oil from 9248-54 feet. Union Sulphur Company took the west half of Section 3-12s-1w from Fohs Oil Company and made location for Baker 1, 660 feet southeast of Mulvey 2.

Mabro Oil Company scored a short north extension to the Valentine field, LaFourche Parish, completing Dousson 1, Section 100-17s-20e, for 41 barrels of distillate and 1,300,000 feet of gas daily via 13/64-inch choke, from the Vicksburg sand.

Propose Repressuring Schuler With Village-Magnolia Gas

The Arkansas Oil & Gas Commission has called a hearing for February 4, at El Dorado, on a proposed repressuring program for the Shuler field. It is the first project of its kind proposed for an Arkansas field.

The project would employ gas from Village and Magnolia fields now being burned in flares, and result in additional recovery of from 10,000,000 to 15,000,000 barrels of oil, enigneers estimate.

If commission approval is forthcoming immediately, construction of a repressuring plant will start February 15, with completion scheduled for early summer. Operators entering into the project own 140 of the 146 wells, while more than 130 persons participating in the royalty agreement own more than 60 percent of all royalties. Ninety-three of the 146 wells, producing from the Jones sand, would be closed.

Companies taking part in the project include Lion Oil Refining Company, Marine Oil Company, Phillips Petroleum Company, Texas Canadian Oil Corporation, Atlantic Refining Company, Crescent Drilling Company, Delta Drilling Company, Sklar Oil Corporation, T. H. Barton, O. C. Bailey, J. D. Trimble, Edwin M. Jones, C. H. Murphy, Ruth Hurley, Ruth Hurley, guardian for Joe B. Hurley Jr., Ruth Hurley, guardian for Lou Anne Hurley, J. K. Hahoney, Emma Riley, Bertie W. Murphy, Emon A. Mahony, Patty Joe Montgomery, G. P. Gammill, trustee, J. I. Roberts and C. H. Murphy.

North Louisiana

Another Large Gas Well in Logansport-Joaquin Area

Another large wet gas well was completed last week on the Louisiana side of the Logansport-Joaquin gas field when Southern Production Company brought in Alston-Frost Unit 1, SEc 11-11n-16w, DeSoto Parish, at 4929 feet, gauging 123,000,000 cubic feet daily, from Glen Rose. Three weeks ago the company completed Gaoon-Frost Unit 1, NE NE 12-11n-16w, making 177,000,000 cubic feet of wet gas daily. Operators made a location in Section 1-11n-16w.

Across Sabine River on the Texas side of this field, Grady Vaughan moved in material for a Glen Rose test, a half-mile east of the Shelby County producing part of this field, on a 160-acre fee tract owned by The Texas Company in the Brooks Survey.

Two Wilcox shallow tests in Caldwell Parish were abandoned: V. V. Ryan's Louisiana Central Lumber Company 1, NE NE 16-12n-4e, at 3020 feet, and David J. Crawford's Louisiana Central Lumber Company 1, C SE SW 30-12n-4e, at 2520 feet.

H. L. Hunt spudded a wildcat in Madison Parish, W. A. Lancaster 1, SW SW 2-14n-12e. In Union Parish, Walter B. Rheineck will drill Hudson 4, SEc 7-23n-1e. This is in the old Oakland district where there were a few small shallow oil wells completed in 1923.

Lide & Greer have let contract to Allen & Morris of San Antonio for a test in W½ NE 11-17n-4w, Lincoln Parish, in an area where a commercial well was completed several years ago but recently inactive following completion of a 7000-foot failure.

Union Producing Company's Meadows A-1, C NE 18-21n-4w, Claiborne Parish, and only test in this territory drilling below 10,000 feet, drilled ahead at 11,140 feet in shale.

The south flank of the Cotton Valley dome, Webster Parish, accounted for an 850-barrel well at Hunt Oil Company's Crichton 1, C NE NW 31-21n-10w, 8600 feet in Lower Marine.

Southeastern States

Abandoned Jackson Hole Blows Out From Wilcox

City of Jackson's Fee 2, NE SE 34-6n-1e, Hinds County, townsite well in the Jackson gas field, blew out of control last week while casing was being pulled from the hole, the well having been abandoned last December 23, as a dry hole at 2547 feet. Anderson and Company, contractors, were pulling casing after having shot it at 1400 feet and about 300 feet of pipe had been recovered when the well blew out, apparently from shallow Wilcox sand, Gas,

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accompanied by a flow of fresh water and sand, was estimated at 10,000,000 cubic feet daily. The well a few hours later was brought under control.

A number of wells drilled in the Jackson field have shown gas in the shallow Wilcox but this was mainly blamed on bad casing and the gas getting into the Wilcox was believed to have originated from the regular 2400-2500-foot Midway gas producing horizon. However, the blowout of this well may lead to drilling of a series of Wilcox-sand tests.

The test which blew out topped Cockfield at 95 feet, Wilcox at 1140 feet, Midway at 2441 feet, and Midway black shale at 2535-41 feet, with 3 feet of hard lime immediately under this.

Five locations were announced in the Tinsley field.

Mellen & Gear's Wood 1, SE SE 21-4s-11e, Tishomingo County wildcat, which operators had reported had shown some gas, was abandoned at 1845 feet.

Exchange Oil Company is shooting 85 core holes drilled in Townships 10 and 11 north, Range 5 and 6 east, Madison and Leake counties, for seismograph data, and the structure is reported running high. This company plans an early test in Section 23-10n-5e, Madison County. However, it is dropping acreage in Townships 16 and 17 north, Ranges 1 east and 1 west, Holmes County, and around its Wildwood 1, Section 6-20n-1e, Holmes County, which was a dry hole last summer at 5416 feet.

Humble Oil & Refining Company and J. S. Wheless, Jr., are acquiring royalty in Township 2 south, Range 7 west, George County, southeast Mississippi, where the company recently acquired a large block from V. C. Perryman and plans an early test.

Lewis A. Ellis and G. L. Reasor, both of Chicago, are completing a 20,000-acre wildcat block in northwest Winston and northeast Marion counties, Alabama, and are expected to drill a test within the next few months.

Order 40-Acre Spacing For Cedar Lake Field

Standard 40-acre spacing for wells in the Cedar Lake field, Gaines County, is provided in a new Texas Railroad Commission order. Proration is on acreage and per well, with 75 percent allocated on acreage.

To obtain the full 40-acre assignment, a well must be 1320 feet from the nearest well on the same lease. A maximum of 50 acres may be assigned to the final well on a unit. Special hearings will be held for odd-shaped units to determine whether they should get the full acreage assignment.

Rules provide for 200 feet of surface casing cemented to the surface, and an oil string set in the top of the lime with enough cement to reach the base of the salt.

West Casa Blanca Placed Under 10-Acre Spacing Rule

Standard ten-acre spacing for wells in the West Casa Blanca field, Duval County, is provided in a new Texas Railroad Commission order. Proration is on acreage and per well, with 50 percent allocated on each factor. Rules provide for 40 feet of surface casing cemented to the surface, and an oil string set with 150 sacks of cement.

California

Los Angeles Shallow Wildcat Promises New Oil Field

Four miles northwest of the recently discovered Del Valle field of Los Angeles County, Western Gulf Oil Company was preparing to complete Lechler 1, wildcat, which may result in the first 1941 new field discovery in California. A drill-stem test indicated a good well, with production possibilities estimated at from 250 to 350 barrels daily. Bottomed at 2442 feet, coring indicated productive horizon of about 140 feet, above 2408 feet. The company has some 1800 acres, which appear to blanket the structure. Productive formation is upper Miocene, said to correlate with the productive horizon at Del Valle.

Barnsdall Oil Company has obtained lease on 2400 acres near Castaic, in this same area of Los Angeles County, its bid being accepted by the Los Angeles County Board of Supervisors from among three submitted for drilling rights on the county's prison farm in this area. The bid stipulated $50,000 cash, 25 percent royalty of all oil produced and $250,000 additionally from 5 percent of production from one-half the property, an option on the remaining half of the property with payment of $500,000 cash and 25 percent royalty, if and when the option is exercised.

In the Oxnard-Saticoy area of Ventura County, The Texas Company's Montgomery 1, wildcat in Section 13-2-22, on formation test at 7310-87 feet, recovered 260 feet of heavy oil and showed a steady gas blow on formation test. Operator was expected to continue coring. In this same district, southwest of the corner of Patterson Road and Fifth Street, Southern California Petroleum Corporation and E. A. Bender's Farrell 1A had been cored in sand to 7006 feet. Last cores failed to show any appreciable cut, and operations have been temporarily suspended, Southern California Petroleum Corporation having completed contract to take well to 7000 feet.

Southern California Petroleum Company was grading location for a deep test immediately southwest of the corner of 122 Street and Vermont Avenue in the Athens area of Los Angeles County. Location is 1000 feet northeast of tested territory.

An extensive revival of drilling in the old Seal Beach field, Los Angeles County, was expected as a result of successful completion of Hellman Estate Company's No. 6 from the lower Wassem zone on the east side of the fault. Completion gives company several additional locations, and another project is scheduled to get under way immediately. No. 6 flowed at an initial rate of 400 barrels daily through a ½-inch bean, output later stepping up to 1080 barrels daily rate, 27.3-gravity oil cutting 3.2 percent through slightly less than a ½-inch bean. Gas output was estimated at 1,500,000 feet. Well was bottomed at 5670 feet, and water shutoff was placed at 5639 feet.

Outcome of a test in the Inglewood field by Federal Oil Company was being watched with considerable interest. Smith 1 was bottomed at 7995 feet, and in running casing operator had considerable difficulty controlling gas pressures.

Michigan

Roscommon County Well Tests Free Oil Show in Dundee

The first test to show free oil in the Dundee limestone horizon in Roscommon County was attracting wide interest. The show was logged in Eugene Hilliard's State 1, C N½ NW NE, Section 19-21n-13w, at 4045 feet, with Dundee topped at 3941 feet. Drilling was halted at the show point to run 5-inch casing. Water from the upper Traverse, which had not been cased off, made it impossible to evaluate the show.

Sun Oil Company continued to deepen McIntosh 1, C S SW NE 16-19n-3w, Clare County, below 4948 feet, deepest test ever drilled in Clare County. Top of Dundee, original objective, was logged at 3818 feet and after this zone drilled dry, operators decided to go deeper. Monroe lime was logged at 3901 feet, salt at 4190 feet, base of salt at 4680 feet, show oil at 4804 feet in lime, and Little Sylvania at 4818 feet. At 4932 feet, a water zone was encountered, but operators hoped to get the hole into the Big Sylvania sand, charted around 5000 feet.

Gulf Refining Company backed off drill pipe just below second joint on Bateson 1, Section 2-14n-4e, the state's record depth test at 7776 feet, where attempts to recover drill pipe have been under way for two weeks. Present plan calls for running in a string of small-diameter drill pipe, along side of 4½-inch lost string, in an attempt to get enough open hole to establish mud circulation. The 4½-inch was fractured in the second joint from top, and the rest of the string has bridged in one or more places.

Shallow lime operators on the west side had additional encouragement for new development with Bell and Marks, Inc.'s Tanis 1, SW SW SE 1-6n-13w, Ottawa County, showing 400 feet of oil natural from Traverse at 1882 feet. Test is a diagonal offset to Fisher-McCall, Inc.'s Wells 1, a 30-barrel Traverse-lime pumper, which appears to have extended the West Tallmadge field at least a mile southeast.

Ask 10-Acre Spacing for Bazette Field, Navarro County

Topaz Oil Company last week requested 10-acre spacing for wells in the Bazette field, Navarro County, at a hearing before the Texas Railroad Commission. Company officials said there were eight wells in the field producing from the Woodbine, found at 3000 feet. The field was described as narrow; the 20-acre spacing rule might result in drilling some wells outside the field.

UNITED STATES WELL COMPLETIONS

Arkansas

Company, Well and Location	Init. Prod. Bbls.	Depth
Woodruff County (Wildcat)—		
John N. Wadkins, Nathan 1, 18-5n-2w	*	1732

California

Company, Well and Location	Init. Prod. Bbls.	Depth
Fresno County (Coalinga Northeast)—		
Pacific Western, E. C. Comm. 2	100	8250
Pure Oil, E. Coal. Sub. 2	1590	8289
Fresno County (East Coalinga Eocene)—		
Robt. S. Lytle, No. 46-7F	2389	7522
Fresno County (Mendota)—		
Jergins Oil Co., Cheney Ranch 2 (PD-7273)	13	7354
Kern County (Coles Levee)—		
Richfield, KCL-A 45-29	1750	9300
KCL-A 14-32 (PD 8970)	1363	9040
Kern County (Greeley)—		
Superior, Griffith 1	1555	11,490
Kern County (Rio Bravo)—		
Superior, Mandell 2	1545	11,463
Kern County (Ten Sections)—		
Shell, KCL A-67-29	1965	8220
KCL A-54-30	1750	8200
Los Angeles County (Dominguez)—		
Shell, Reyes 109 (PD 7150)	113	7494
Los Angeles County (Newhall-Potrero)—		
Barnsdall, RSF 16	1740	7102
Los Angeles County (Seal Beach)—		
Hellman Estate Co., No. 6	1500	5670
Los Angeles County (Wilmington)—		
Lokern Development Co., Buchanan 1	No. Est.	3601
Union Pacific, UP 155	644	3405
UP 164 (PD 5345)	49	5505
UP 167	1227	2911
Orange County (Huntington Beach)—		
Signal O&G, Signal-Bolsa 21 (PB 3000)	369	3235
Santa Barbara County (Santa Maria Valley)—		
Union, Vincent 6	938	4375
Ventura County (San Miguelito-Padre Canyon)—		
C.C.M.O., Hobson A-11	87	5569
Ventura County (Ventura Avenue)—		
Lloyd Corp., No. 6	350	10,111
Shell, Taylor 130	2374	7640

*Failures; †Junked; ‡Million cu. ft. gas.

Illinois

Company, Well and Location	Init. Prod. Bbls.	Depth
Effingham County—		
E. L. Irvin, Anderson 1, nw nw nw 5-8n-4e	*	1668
Fayette County—		
Magnolia, Clow 39, sw se nw ne 5-7n-3e	364	1553
Franklin County—		
E. S. Adkins, Orient Coal Co. 1, ne sw se 24-6s-2e (PB 2148)	397	3045
Helmerich & Payne, Marvel 1, nw nw sw 36-7s-4e	*	3220
Hamilton County—		
Exchange, Friel 7, ne ne sw 34-5s-6e	50	2999
Jasper County—		
Pure, Tedford Cons. 2, w½ ne sw 20-5n-10e	1545	2830
Jefferson County—		
Taylor Dr. Co., Barnett 1, sw se sw 20-3s-4w	*	1142
Lawrence County—		
Perry, Brown 1, nw ne nw se 22-3n-13w	*	2503
Madison County—		
Harr & Siegler, Bellm 1, nw nw se 17-4n-5w	*	655
Montgomery County—		
Ginsburg et al, McDenner 1, c sw ne se 14-7n-2w	*	1245
Pope County—		
L. V. Garnier, Peoples 1, ne ne ne 30-11s-5e	*	2204
Richland County—		
Pure, Myers 1, se se sw 13-4n-9e	14	2594
Bower 2, nw ne nw 25-4n-9e	45	2592
St. Clair County—		
James Osburne, Reibling 2, nw se sw ne 33-1n-10w	*	516
Wabash County—		
O'Meara, Utter 2-B, nw sw ne 17-1s-12w	1000	2395
Bell Bros., Keepes 1, se nw ne 34-1s-13w (PB 2614)	10	2714
Continental, Seiler 2, ne sw ne 34-1s-13w (PB 2615)	360	2634
Longhorn Oil, Neil 14, sw c se se sw 20-3s-4w	*	1142
Wayne County—		
Pure, Barth 5, se ne nw nw 5-1n-8e	212	3090
Texas, Fleming 1, ne ne ne 32-2s-7e (PB 3240)	*	3382
White County—		
Patton & Carey, Reeves 2, se se ne sw 28-3s-14w	70	2906
Arrow Dr. Co., Eastwood 1, sw se se 29-3s-14w	*	2860
Hon 5, ne sw sw 33-3s-14w	240	2915
Tide Water, Dennis 11, nw ne ne 33-4s-14w	200	2725
Superior, Ford 3, sw nw ne nw 34-4s-14w	460	2950
Given et al 7, sw sw sw 34-4s-14w	260	2915
Greathouse 7, nw nw ne 4-5s-14w	142	2735
Harris & Meyers, Cox 1, sw se se 5-4s-14w	25	2933
W. Duncan, Hughes 1-A, nw ne se 17-4s-14w	87	2590
W. W. Gray, Fee 1-A, se sw ne 17-4s-14w	78	2588
Fee 5, nw sw se 17-4s-14w	138	2720
O. O. Borden, McCallister 2, se se ne 7-5s-14w	*	2670
Ryan Oil, Bramlett 6, se se sw 17-4s-14w (PB 2605)	145	2615
Bramlett 7, sw se sw 17-4s-14w	175	2892
Bramlett 10, c e½ sw se 17-4s-14w	198	2945
Bramlett 11, c s½ sw se 17-4s-14w	134	2716
OLD WELLS DEEPENED		
Hamilton County—		
Stelle et al, L. & N. RR. 3, se c ne 34-5s-6e (OTD 2965)	475	3051

Indiana

Company, Well and Location	Init. Prod. Bbls.	Depth
Gibson County—		
A. L. Braden, Harmon 1, ne se sw 17-3s-11w	*	2568
Joe Bander, Cooper 41, swc ne 13-3s-14w	35	2498
Hall Edwards, Receiver, Maier 17, sw nw nw 13-3s-14w	150	2651
Continental, Bozeman 23, sw nw se 23-3s-14w	40	2937
Boxeman 25, nw sw ne 23-3s-14w	240	2876
Mumford 4, sw nw ne 25-3s-14w	60	2610
Keck 13, sw nw sw 26-3s-14w	50	2608
Keck 14, nw se se 27-3s-14w	50	2610
Mabee O&G, New Harmony Bk 3, sw sw nw 27-3s-14w	113	2999
Greene County—		
L. B. Jackson et al, Holmes 1, nw nw nw 22-7n-6w (Pb 1727)	¶0.431	1765
Knox County—		
Midwest Dev. et al, Frey Est. 2, se sw nw 13-2n-11w	*	1950
Posey County—		
J. E. Crosbie, Keck 8, sw se ne 34-3s-14w (PB 2834)	20	2900
Gulf, Dickhaut 2, sw sw sw 5-6s-12w (PB 2110)	*	2431
Spencer County—		
J. C. Ellis, Spence 1, sw c nw se 29-7s-6w (PB 760)	¶0.158	1414

Summary of Drilling Operations in the United States, Week Ended February 1, 1941

	WELLS COMPLETED								PERMITS FOR NEW WELLS*				
		New Wells Drilled for Oil and Gas											
	Total for Week	Oil Wells	Gas Wells	Failures	Initial Production	‡Miscellaneous	Total 1941	Total this Date 1940	This Week	Total this Month	Total 1941	Total this Date 1940	Year Total 1940
Alabama													
Arizona													
Arkansas	1			1			15	23	2	2	15	7	153
California	22	22			23,311		108	109	29	29	82	114	1,102
Colorado								2					
Florida													
Georgia													
Illinois	37	24		12	6,724	1	274	393	42	42	383	429	4,532
Indiana	14	9	2	3	758		49	48					
Kansas	35	23		9	35,288	3	177	160	25	25	170	146	2,048
Kentucky	8	4		4	745		27	34					
Louisiana	27	15	3	9	3,447		129	176	45	45	143	127	1,658
Michigan	12	6	1	5	652		66	148	15	15	77	158	1,093
Mississippi*	2	1		1	720		13	17					
Missouri								1					26
Montana	12	4	7	1	909		20	19					
Nebraska*	2	1		1	150		15		3	3	6		69
New Mexico	12	8		4	2,058		33	88	7	7	32	75	559
New York	12	6			31	6	55	125					
North Dakota													
Ohio	34	10	15	9	582		137	117					
Oklahoma	37	18	3	10	3,171	6	208	227	39	39	169	195	1,888
Pennsylvania	50	33	13	1	39	3	171	420					
South Dakota													
Tennessee								5					
Texas	151	113	3	35	74,778		746	1,098	267	267	614	1,311	11,170
Utah													
West Virginia	13		11	2			75	85				44	603†
Wyoming	7	4		3	342		11	21					1
Total this week	488	301	58	110	153,705	19	2,329	3,316	474	474	1,691	2,606	24,902
Total last week	484	292	45	119	121,796	28	1,841	2,817	414	1,217	1,217	2,062	24,902
Total this year	2,329	1,481	229	543	743,054	76							

*This tabulation includes those states where weekly data are available; figures for Missouri date from August 10, 1940; Nebraska from August 3, 1940.
† For first 9 months of 1940 only. ‡ Includes old wells deepened, water-intake, gas input, and salt water disposal wells.

United States Well Completions—*Continued*

Kansas

Barton County—
Carter, Burmeister 1, c e½ se nw 2-17-11w 350 3380
Magnolia, Roetzel 19, c e½ se ne 24-20-11w 121 3276
Butler County—
Barker et al, Thompson 1, c w½ nw sw 2-24-3e ..... * 2560
Cities Service, Wilson 195, nwc se 8-25-5e 74 2910
Rex-Morris, Cannon 1, c n½ sw sw 15-28-7e ..... * 2720
Ellis County—
Cities Service, Hall "B" 17, csl se ne sw 26-11-17w 3000 3555
Wakefield, Burnett "E" 2, c w½ ne ne 1-11-18w 1643 3532
Ellsworth County—
Prunty, Skalicky 2, c e½ nw nw 9-16-10w 3000 3285
Texas, Schroeder 3, c n½ se sw 27-16-10w 3000 3276
Emerick et al, Schroeder 1, c e½ se nw 28-16-10w (PB 3322½) 125 3328
Aylward, Ehler 3, cel ne nw sw 35-16-10w 393 3299
Pryor & Lockhart, Strattman 7, c n½ nw ne 2-17-10w 3000 3278
Greenwood County—
Schaffer et al, Imthurn 1-A, ne se ne nw 9-23-13e 5 1800
Small et al, Taliaferro 1, nwc se 4-28-11e ..... * 1327
Huffman et al, Morton 1, ne se ne 10-28-12e ..... * 65
Marion County—
Larieux et al, Fosberg 6, se ne sw 21-17-4e 150 2388
McPherson County—
Bennett, Knackstedt 4, c s½ nw sw 30-20-5w 15 3360
Pawnee County—
Atlantic & Skelly, Wratil 1, c e½ se nw 15-22-15w ..... * 4009
Phillips County—
Cetal, Ray 2, c w½ sw ne 32-5-20w. 1243 3558
Republic County—
Wilcox, Hirmon 1, c se nw 30-2-1w. * 3565
Rice County—
Skelly, Ira 3, c n½ sw nw 27-19-10w 542 3031
Rooks County—
Consumers, Beardmore 6, c s½ nw ne 10-9-16w 3000 3185
Russell County—
Jones & Shelburne, Lewis 2, c w½ nw ne 28-14-12w ..... * 3164
Skelly, Colliver 9, c n½ se se 28-14-13w 2017 2954
Phinney 2, c s½ ne nw 30-14-13w. 3000 2952
Braden & McClure, Phillips 1, c n½ nw se 34-15-11w 1254 3313
Southern, Berrick 3, nec 6-15-13w. 1634 2931
Stafford County—
Shell, Brown 4, nec sw 2-24-11w. 2065 3751
Moore & Texas, Stewart 7, c s½ nw se 12-24-11w 3000 3733
Winkler-Koch, Equitable Life 3, c e½ sw ne 15-24-11w 1440 3821
Bay et al, Campbell 1, c e½ ne ne 33-24-15w ..... * 4570
Vickers et al, Stewart 1, c e½ ne ne 22-25-11w ..... * 4072

OLD WELLS DEEPENED

Greenwood County—
Weideman, Lewis "A" 2, sw ne se sw 25-27-8e (OTD 1860) 35 2743
Reno County—
Texas, Stucky 1, c nw nw 36-23-4w (OTD 3365) ..... * 3662
Russell County—
Transwestern, Polcyn "C" 10, nw ne sw 11-14-15w (OTD 3063). 1182 3262

Kentucky

Daviess County—
W. E. Hupp, Sheriff 1 ..... * 1529
O. D. Vickers, Johnson 3 ..... 100 1460
Staves Dr. Co., Iglehart 7..... 150 1287
Creek Dr. Co., O'Flynn 4 ..... * 1376
McLean County—
J. C. Ellis, Stevens Hrs. 4..... 480 1630
Ohio County—
Sohio et al, Taylor 1 ..... * 1095
Rex-Pyramid, Jolly 3 ..... 15 1044
W. H. Parks, Shreves 1 ..... * 274

South Louisiana

Acadia Parish (East Tepetate)—
Bering, Sittig 1 ..... * 4203
Vincent & Welsh, Hayes 1 ..... 69 3514
Acadia Parish (North Crowley)—
Humble, Reiners 5 ..... 192 8760
Acadia Parish (South Crowley)—
Humble, Leger 3 ..... * 8984
Calcasieu Parish (Starks)—
Union Sulphur, Fee 874 ..... 260 5098
Evangeline Parish (Ville Platte)—
Continental, Vidrene 2 ..... 68 10,207
Iberia Parish (Fausse Point)—
Sun, Planters 6 ..... * 1421
Jefferson Parish (LaFitte)—
Texas, Madison 9-A 791 10,162
LaFourche Parish (Golden Meadows)—
Bateman, Hatcher 1 ..... 210 5214
Brown-Woods, State 7 ..... 74 2676
Plaquemines Parish (Venice)—
Tide Water, Buras Levee 9 ..... 302 10,705
St. Landry Parish (Port Barre)—
McDannald, Futral 3 ..... 337 5658
St. Martin Parish (Anse La Butte)—
Iberia, Martin 2-A ..... * 2907
Stanolind, Martin 1 ..... 39 2823
St. Mary Parish (Charenton)—
Pan American, Veeder 28 ..... 60 1129
Terrebonne Parish (Bay St. Elaine)—
Jeff. Lk. S. Co., SDR 7 ..... * 5550

North Louisiana

Caddo Parish (Pine Island)—
A. R. Hancock, Helpman 8, 16-21n-16w 20 1026
Texas-Canadian Oil Co., Rush & Crum 1, 28-21n-15w 25 1550
Claiborne Parish (Lisbon)—
C. H. Lyons et al, Lloyd A-1, 2-20n-5w ..... ¶3.5 5395
Caldwell Parish (Wildcats)—
D. J. Crawford et al, La. Cent. Lbr. Co. 1, 30-12n-4e ..... * 2520
V. V. Ryan et al, La. Cent. Lbr. Co. 1, 16-12n-4e ..... * 3020
De Soto Parish (Logansport-Joaquin)—
Southern Prod. Co., Alston-Frost Unit 1, 11-11n-16w ..... ¶123.0 4929
La Salle Parish (Olla)—
Petersen Pet. Corp., Tremont Lbr. Co. 2, 25-9n-2e ..... * 3252
Placid Oil Co., La. Cent. Lbr. Co. 42, 36-10n-2e 150 2414
La Salle Parish (Nebo-Jena)—
H. L. Hunt, Goodpine Lbr. Co. A-9, 3-7n-3e ..... * 3882
Union Parish (Monroe)—
Interstate Nat. Gas C., Fee 105, 27-22n-3e ..... ¶2.0 2217
Webster Parish (Cotton Valley)—
Hunt Oil Co., Crichton 1, 31-21n-10w 850 8600

Michigan

Allegan County—
Universal G. & O., Smith 2, nw nw ne 15-4n-13w 228 1606
R. D. Malcolm, Selby 1, nw ne se 22-4n-13w ..... * 1591
E. H. Harz, Shafer 1, nw ne sw 29-1n-13w 149 1339
Bay County—
Chapman Oil Co., Reichstiener 1, ne 3-14n-4e 60 2891
Calhoun County—
Muskegon Dev. Co., Allison 1, sw sw nw 15-2s-4w ..... * 1757
Isabella County—
W. E. Ross, Drake 1, c e ne 20-16n-3w ..... ¶5.5 1254
Montcalm County—
Columbia O. & G. Co., Olson 1, nw nw se 27-11n-7w ..... * 3114
Ottawa County—
Fisher-McCall, Wells 1, ne se sw 1-6n-13w 30 1888
Mesel & Spielberg, Lipski 6, ne se sw 14-7n-13w 25 1879
Smith Pet. Co., Fenske 1, sw se nw 34-7n-13w 160 1847
Van Buren County—
Clapsaddle & Harris, Joy 1, sw sw ne 4-1s-14w ..... * 1282
Fortney Oil Co., Stiles 1, nw ne ne 27-1s-14w ..... * 1345

Mississippi

Tishomingo County (Wildcat)—
Mellen & Gear, Wood 1, 21-4s-11e.. * 1845
Yazoo County (Tinsley Dome)—
Union Prod. Co., Harris 4, 30-10n-2w 720 5045

Montana

Blaine County (Bowes)—
Montana Gas Corp., Columbia 1, sw ne sw 10-31n-19e ..... ¶ 4.0 1024
Guertzgen 1, se se nw 35-32n-19e. ¶22.5 760
Sias 1, se se sw 4-31n-19e..... ¶ 5.5 1188
Fallon County (Cedar Creek)—
Montana-Dakota Utilities, Ptd 147, csw ne 19-4n-62w ..... ¶0.25 1660
Ptd 148, cne sw 17-4n-62w ... ¶ 0.5 1500
Glacier County (Cut Bank)—
A. J. Kately, Kremer 3, cel sw ne 15-34n-6w 212 2916
Steele Creek Oil Co., Carmen 4, sw sw ne 19-34n-5w 55 2788
Santa Rita O. & G. Co., Fee 1, c se se 25-34n-6w 271 2925
Texas Co., State 8, c ne sw 16-32n-5w 371 2920
Phillips County (Bowdoin)—
Montana-Dakota Utilities, No. 619, c sw sw 2-32n-33e..... ¶0.75 1045
No. 620, c sw sw 1-32n-33e .... ¶ 0.5 994
Toole County (Kevin-Sunburst)—
Hannah-Porter, Donovan 1, c sw se 8-33n-1w ..... * 1163

Nebraska

Richardson County—
Pioneer et al, Hough-Hill 1, c se sw 6-1n-16e ..... * 2514
Boice 1, ne nw ne 18-1n-16e..... 150 2278

New Mexico

Eddy County—
Allen-Fair-Pope, State 1-C, sw ne nw 2-18s-29e 480 2738
Bassett & Birney, Kimbell 1, sec 26-18s-26e ..... * 1990
Carper Dr. Co. et al, McFaddin 3-A, ne se nw 3-19s-31e ..... * 2695
Danciger O&R, Turner 8-A, c sw se 18-17s-31e 480 3448
Turner 9-A, c n½ nw ne 19-17s-31e 160 3422
Fullerton Oil Co., Little 3-B, c sw sw 21-18s-31e 30 3741
Neil Wills et al, Keyes 3-A, c nw se 15-20s-30e 600 1639
Wilmar Oil Co., Ginsberg 1-B, c se nw 7-18s-31e 15 3176
Eddy County (Wildcat)—
S. P. Yates et al, Ross 1, se nw sw 22-19s-25e ..... * 1200
Harding County—
National Carbonic Co., Mitchell 1, c nw nw 9-18n-30e ..... * 1652
Lea County (Mattix)—
E. G. Rodman et al, State-Humble 1-L, nec 32-24s-37e 135 3551
Lea County (Skelly)—
R. Olsen Oil Co., Blinebry-Texaco 1-B, c sw sw 34-23s-37e 158 3571

New York

Allegany County—
Putnam Oil Co., Birtoil farm, Wirt. 7 1533
Friendship Oil Co., Richardson farm, Bolivar 5 1295
Dawson Oil Co., Brown farm, Scio. 4 1424
Bradley Prod. Corp., Coats farm, Wirt 5 1379
Clair Oil Co., Carrier farm, Wirt.. 5 1564
Sloan & Zook, McDivitt farm, Bolivar 5 1378

WATER INTAKE WELLS

Allegany County—
Walter McEnroe, Hoover farm, Bolivar 1630
Bradley Prod. Corp., Duke farm, Alma 1587
Roy E. Vossler, McEnroe farm, Alma 1263
Bradley Prod. Corp., Fritz-Carrol lot, Bolivar 1424
Ed McLaughlin, Briggs farm, Willing 1238
L. H. Richardson et al, Browning farm, Scio 953

Ohio

Athens County—
Gibson et al, Morrison 3..... 4 437
Orndoff, Lafollet 1 ..... ¶ 0.7 1214
Wickens et al, Jackson 1.....¶0.07 725
C. P. Bowman, Burson 1..... * 1630
Coshocton County—
Dunman Oil Co., Ashcraft 1..... 80 3148
Fairfield County—
City Nat. Gas, Sharp 1.....¶0.12 2141
Gallia County—
Orndoff, Summers 1 .....¶0.04 1652
Jefferson County—
Austin Sanders, McCoy 1..... * 1535
Knox County—
Upham Gas Co., Loney 1 .....¶2.34 2815
H. E. Perkins et al, Mackley 2....¶2.0 2720
Ridgeway & Johnson, Houger 1..¶1.0 2773
Ohio Fuel, Smithhisler 1 .....¶0.5 2808
Morningston 1 ..... * 3024
Licking County—
McClay Bros., Fee 3 ..... 35 2994
J. W. Hartman, Fee 1 .....¶0.5 2329
Davidson, Matz 1 ..... * 2330
J. S. Jones Est., Fee 1 ..... * 2310
Lorain County—
Williams Prod. Co., Gest 1 ..... 3 167
Medina County—
T. R. Phillips et al, Crocker 6.... 30 478
Crocker 7 ..... 25 500
Meigs County—
Tyree et al, Capehart 5 .....¶0.6 3355
Monroe County—
C. E. Humphries et al, Schwallier 1 ¶0.15 1128
Craig Bros., Dye 1 ..... * 2081
Hanlon & Schoz, Amos 6 ..... * 843

United States Well Completions—*Continued*

Company, Well and Location	Init. Prod. Bbls.	Depth
Perry County—		
Palm Oil Co., Kehota Coal 2	220	3413
Lyons 3	120	3348
Forgraves 2	¶0.1 & 60	3370
C. Z. Ruth, Post 22	5	1175
John Shannon et al, Miller 1	¶0.03	803
Ohio Fuel, Shaw 1	*	2769
Summit County—		
Burtner, Morgan et al, Geig 2	¶1.07	4292
Tuscarawas County—		
Nat. Gas of W. Va., Hathem 1	¶0.17	4790
Van Wert County—		
Richey & Kunkle, Hunless 2	*	1260
Washington County—		
Cline et al, Hall 2	¶0.03	2017

Oklahoma

Company, Well and Location	Init. Prod. Bbls.	Depth
Carter County—		
Kyle, Dougherty 10, se sec sw 17-4s	170	2022
Lamb, Fee 3, ne nw ne nw 29-4s-2w	14	2297
Creek County—		
Wilcox, Deer 1, ne sw ne 34-14n-7e	¶6.1	2555
Viersen et al, Judeman 3, ne se nw 24-14n-10e	35	3218
Trigg et al, Jennings 1, nw sw ne 18-16n-8e	*	3735
Meisner et al, Broadnax 7-B, sw sw ne nw 16-17n-11e	20	2540
Sand Springs Home, Atkins 32, ne se sw ne 5-18n-7e	10	2644
Garvin County—		
Cox & Hamon, Parton 1, sw se se 29-1n-3w	80	2266
Kiowa County—		
Gled, Howard 1, swc ne 20-7n-17w.	*	2556
Lincoln County—		
Mid-States, Provaznik "A" 4, ne sw sw 33-12n-6e	85	3310
Logan County—		
I.T.I.O., Cronkite 1, ne se nw 22-15n-4w	*	7134
Okfuskee County—		
Moffett, Fields 1, c nw ne 31-10n-12e	¶1.0	2630
Shell, Replogle 5, sw ne se 35-11n 8e	475	3446
Portable, Nelson 1, ne se sw 1-11n-9e	*	4108
Droppleman, Dill "C" 6, sw se ne 34-12n-8e	552	3622
Davon, Long 2, c se sw 34-12n-9e (PB 3824)	¶2.0	3855
Oklahoma County—		
Champlin, Littlepage 1, nw se nw nw 35-12n-3w	344	6529
Okmulgee County—		
Bryan, Thompson 1-A, sec ne 32-16n-11e	25	2047
Osage County—		
Bunch, No. 1, nw nw 29-23n-9e	*	601
Bay, No. 1, sw se sw sw 34-29n-11e	*	1042
Lewis & Texas, St. John 3, c s½ se sw 17-24n-7e	*	2602
Pawnee County—		
Alma, Hill 1, c n½ nw sw 1-21n-5e	500	3369
Pottawatomie County—		
Sinclair Prairie, Regan 4, ne sw se ne 17-7n-4e	669	4225
I.T.I.O., Weams 7, ne nw sw 21-7n-5e	31	2786
Seminole County—		
Mitchell, Harris 1, ne sw se 19-5n-6e	28	2643
Davis et al, Jones "A" 1, nw se sw 34-6n-5e	15	2218
Justin, Snider 1, ne sw ne 5-6n-6e.	*	3307
Stephens County—		
Gulf, Fisher 1, c se sw 13-2s-4w (PB 3983)	85	3987
Pace, Allen 26, sw se ne ne 3-2s-8w	30	2237
Tillman County—		
Stovall, Garner 1, ne sw se 24-1n-17w	*	622
Wagoner County—		
Becker et al, Brown 1, c nw ne 20-16n-18e	*	1028
OLD WELLS DEEPENED		
Muskogee County—		
Haskell, Corbray 1, swc ne 1-15n-15e (OTD 302)	¶0.5	1046
Creek County—		
Sinclair Prairie, Sac Long 20, ne nw sw 9-18n-7e (OTD 2680)	3	2710
Pottawatomie County—		
Denver P&R., Houck 1-A, se nw nw 1-6n-4e (OTD 4440)	*	5818
Grisso, La Reau 1, nec sw 33-6n-3e (OTD 3615)	*	4158
GAS INPUT WELL		
Creek County—		
Sinclair Prairie, Kiefer 40, sw nw se se 17-17n-12e	...	1529
SALT WATER DISPOSAL WELL		
Osage County—		
Barnsdall, 23, ne se ne ne 31-21n-12e (OTD 1928)	...	2117

Pennsylvania

Company, Well and Location	Init. Prod. Bbls.	Depth
BRADFORD DISTRICT		
V. G. Smith, Fee	½	....
Messer Oil Corp., Loop	2	....
Bradford Tr. Co., 20 wells	20	....
Forest Oil Corp.	1	....
Forest Pet. Corp., 2 wells	2	....
Niagara Oil Corp., 3 wells	3	....
Bel Oil Co., Fee	1	....
Grant & Mohan Oil Co., Moody 2	1	....
Esther Oil Co., Lauton	1	....
Andrus & McDowell, 326 Bing	1	....
Pine Run Oil Co., 130-1-2-3-4-6	4	....
NEW YORK- PENN GAS FIELD		
Leiderbach et al, Earl House	*	....
BUTLER-ARMSTRONG DISTRICT		
Dow Smith et al, Frank Foltz	¶	....
MIDDLE DISTRICT		
Beck & Co., Beck	¶	....
Franklin Exchange Bk. & Tr. Co., Whieldon	1	....
E. H. Culberton, Wright	¾	....
SOUTHWEST DISTRICT		
Allegheny County—		
Chas. B. Wachter, Pierce 1	¶	725
Armstrong County—		
T. W. Phillips, Boyer 3	¶0.04	3507
Clarion County—		
Gourley Gas Co., Gourley 3	¶0.13	2500
T. W. Phillips, Dinges 2	¶0.02	1361
Fayette County—		
Wahler-Powers, Geneva Supply 1	¶0.63	1327
Greene County—		
Lewis Petit et al, Shields 1	¶0.18	3850
Guy B. Patterson, Fuller 1	¶0.14	2812
Gartland Oil Co., McClure 1	¶0.04	2828
Indiana County—		
T. W. Phillips, Sell 1	¶0.05	3500
Washington County—		
Carnegie Nat. Gas, Amos 2	¶0.04	2877
Westmoreland County—		
Peoples Gas Co., Weister 1	¶0.04	3655
WATER INTAKE WELLS		
Bradford District—		
Forest Pet. Corp.	...	....
Niagara Oil Corp.	...	....
Esther Oil Co., Lauton	...	....

Texas Gulf Coast

Company, Well and Location	Init. Prod. Bbls.	Depth
Fort Bend County (Thompsons)—		
Naylor, Hempil 6	159	10,000
Matagorda County (Bay City)—		
Skelly, Moore 9	108	8507
Polk County (Segno)—		
Gulf, Wing 46	351	8052
Tyler County (Joe's Lake)—		
Republic, Hurd 49	188	7710
Tyler County (Spurger)—		
Republic, Houston-Republic 6	¶	7504
Wharton County (Magnet)—		
Humble, Cockburn 33	58	5536
Wharton County (Withers)—		
Texas, Pierce C-87	94	5450

North Texas

Company, Well and Location	Init. Prod. Bbls.	Depth
Archer County (Hull-Silk)—		
Chapman & McFarlin, Wilson 13-C	608	4370
Bert Ligon-Deep Oil Dev. Co., Wilson 8	696	3961
Mrs. J. H. Massie et al, Nichols 22	552	3897
R. G. Dr. Co., Carson 1-B	*	4829
Archer County (Shell-Coleman)—		
Shell Oil, Coleman 1-B	1875	5050
Southern Pet. Explor., Wilson 1-A	130	5215
Archer County—		
Deep Oil Dev. Co.-Christie, Finley 6	10	945
Rathke Oil Co., Harmel 6	7	1434
Shappell Oil Co., Gulf 2	*	1809
Jackson 4-E	*	1796
Young-Woody-Grace-Wood, Robertson 3	*	1406
Archer County (Wildcat)—		
Gibson & O'Donohoe, Jentsch 1	*	4806
Baylor County (Seymour)—		
British-American O.P. Co., Taylor 1-A	236	2550
Clay County (Antelope)—		
Shell Oil, Coburn 5	1620	3272
Clay County (Wildcat)—		
Geo. G. Golden et al, 1st. Texas Jt. Stock Bank 1-B	*	1360
Clay County—		
Republic Nat. Gas Co., Thornberry 1	*	1435
Cooke County—		
Whitfield-Pearson-Grimes, Sicking 2	26	1736
Sicking 5	312	1302
B. Voth 11	36	1661
Jack County—		
Panhandle Ref. Co., Derrick 2	516	3128
Smith 6	7	2927
King County (Wildcat)—		
J. B. Cunningham-Cannon, Thorman 1	*	2304
Montague County (Bonita)—		
Sinclair Prairie, Howard 6	6116	5247
Wichita County (K-M-A)—		
Bass & Dillard, Kempner 12	624	3901
Grace & Murphree, Burnett 3	504	4134
Shell-Phillips Pet., Griffin 18	652	3868
Wichita County—		
Ted Norwood et al, Guyer 1	*	1551
Geo. Proctor et al, Foster-Allen 55-A	*	1385
Wichita County (Wildcat)—		
Underwood Oil Co., Owen 1	*	1253
Wilbarger County—		
Laird & Lutz, Streit Bros. 2	9	1960
Pois & Schluz, Flaniken 5	5	1238
Wilbarger County (Fargo)—		
Amerada Pet. Corp., Folley 2	585	3239
Young County—		
E. S. Brashear et al, Johnson 1	*	785
L. T. Burns et al, Larimore 4	10	878
Larimore 5	9	879
Cato Bros., Hamilton 3	9	884
Kimmell, Lee & Co., Campbell 2-B	8	967
B. T. Meyer et al, Prideaux 4	8	568
W. F. Palmer et al, Campbell 13	*	994
P. B. Worthington et al Clark 1	118	874
Clark 2	71	887
Clark 3	*	905

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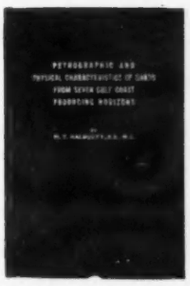

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United States Well Completions—*Continued*

South Texas

CORPUS CHRISTI DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
Aransas County (McCampbell)—		
Gillespie & Sons Co., Campbell et al 1	225	7250
Brooks County (Wildcat)—		
La Gloria, Arguellez 1, lot 28 blk 10, W. W. & Harriett R. Jacobs La Gloria townsite subd	¶100.0 & 300	6650
Goliad County (Wildcat)—		
Nelson & Cron, Albrecht 1, 400-ac tr, Manuel Corriona sur	•	3605
Jackson County (Wildcat)—		
Humble, Egg 1, 542.2-ac tr, B. J. White lge, 6½ mi ne La Ward	•	8258
Jim Wells County (Wade City)—		
Delange & Rowe, McNeill 5	425	4925
Jim Wells County (Wildcat)—		
La Gloria, Scott 1, lot 1, blk 9, Ragland & Herring La Gloria towwnsite subd	¶100.0 & 300	6764
Live Oak County (White Creek)—		
Henderson Coquat, Cox 5-A	100	1316
Nueces County (Agua Dulce)—		
Richardson, McCoy 4	500	7008
Nueces County (S. Clara Driscoll)—		
Texas Conservative, Flinn 10-B	500	5960
Nueces County (E. Flour Bluff)—		
Humble, Flour Bluff-State 1-H	600	6768
Refugio County (Tomoconnor)—		
Quintana Petr. Co., Heard 45	1500	5925
Victoria County (Heyser)—		
Gulf, Traylor 48-B	500	5494

LAREDO DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
Duval County (Cedro Hill)—		
Humble, Duval Co. Rch. Co. 1-G	19	1449
Duval County (Charamousca)—		
Magnolia, Duval Co. Rch. Co. 4	¶3.0	1549
Duval County (Wildcat)—		
Bridwell, Rogers 2-D, 120-ac "D" lse, J. Poltevent sur 21	•	4500
Jim Hogg County (Colorado)—		
Humble, Atwood 22	200	3105
Jim Hogg County (Kelsey)—		
Humble, Jena et al 2	350	4750
Jim Hogg County (Manila)—		
Bridwell, Zachry 1	88	2590
Jim Hogg County (Wildcat)—		
Sun, East 4	•	4216
McMullen County (Wildcat)—		
Magnolia, Rhode 1, Scale & Morris sur, on 2240-ac lse, 4 mi ne Brazil	•	3219
Webb County (Wildcat)—		
Seaboard Oil Co., Newton 3	•	1810

SAN ANTONIO DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
Caldwell County (Wildcat)—		
Ellmag, Connely 1, 461-ac tr, John D. Rains sur, extends Tinney Creek 1 mi se	12	2860

Texas Panhandle

Company, Well and Location	Init. Prod. Bbls.	Depth
Carson County—		
Clayton-Dwyer Dr. Co., Shafer-Texaco 4	300	3105
Skelly Oil, Schafer 112	282	3088
Gray County—		
Wilcox O&G Co., Combs-Worley 46	216	3076
Hutchinson County—		
W. H. Ingerton et al, Jasper 1	567	3150
Phillips Pet. Co., Cockrell 49	181	3075
Jordan 13	192	2990
Shell Oil, Harvey Sisters 8-B	330	3064
Skelly Oil, Watkins 11-B	230	2870
Texas Co., Lewis 33	323	2995
Pond 34	306	3060
Wheeler County—		
J. P. Ledford et al, Locke 1	27	2171

East Texas

Company, Well and Location	Init. Prod. Bbls.	Depth
Joiner Area—		
G. V. Allen et al, Alford 2 (55/100-ac)	128	3628
P. G. Lake, Inc., Reid 22 (120-ac)	475	3622
Shell Oil, Brooks 25-A (174.69-ac)	480	3767
G. H. Vaughn et al, Alford 14 (80-ac)	1000	3810
Kilgore Area—		
Delta Dr. Co., Crim 12 (20.08-ac)	250	3593
Fair Oil Co., Carr 5-A (34.04-ac)	900	3488
Hall & Hall, Dickson 6, blk 152	300	3577
Julian O. & Roy. Co., England 9 (32-ac)	1500	3555
J. F. Merrick et al, Laird 3-B (4-ac)	2000	3572
Nioco Oil Co., Knowles 14 (7.16-ac)	1100	3580
Overton Ref. Co., I&GN Ry. 22-B (7.88-ac)	600	3573
Sinclair Prairie, Kennedy 15-B (52.44-ac)	120	3710
M. E. Trapp et al, King-Johnson 8 (2.8-ac)	700	3593
Weaver-Crim Corp., Bean 5-B (16-ac)	1200	3700
T. B. Wrather et al, Hughey 7 (76/100-ac)	480	3597
Longview Area—		
O. C. Bailey & Trimble, Jones 8 (15-ac)	2400	3667
Jones 10 (15-ac)	2500	3672
Hamill & Smith, Everett 6 (11.3-ac)	1200	2525
Roger Lacy et al, Victory 24 (100-ac)	2000	3660
B. F. Phillips et al, Corbin 2 (5.08-ac)	3000	3617
Prince Bros. et al, Williams 9 (37-ac)	750	3716
M. E. Trapp & Blankenship, Mosley 4 (7.88-ac)	2500	3504
Hill County (Wildcat)—		
Rush & Sanders, Hutchinson 1	•	830
Lamar County (Wildcat)—		
T. M. Parmley et al, Townsend 1	•	1620
Red River County (Wildcat)—		
J. F. Morrissey et al, A. F. Tyer 1	•	2910
Van Zandt County (Van)—		
Preston Calvert et al, Carter 1	1448	2827
Wood County (Wildcat)—		
E. C. Johnston et al, Green 1	•	5100

West Texas

Company, Well and Location	Init. Prod. Bbls.	Depth
Cochran County (Duggan-Slaughter)—		
Osage Dr. Co., Moore-Devonian 2-D	686	5057
Crockett County (Soma-Noelke)—		
M. & M. Dr. Co. et al, Bouscaren 1	¶40.5	1555
Ector County (Foster)—		
I.T.I.O. Co., Johnson 3-F	791	4152
Rhodes-Tompkins & Great Western, Maurice 4	403	4310
Maurice-Sinco 5	653	4306
Ector County (North Cowden)—		
Richmond Dr. Co.-C. O. Collins, Smith 2	2292	4151
Stanolind, Midland Farms 3-A	272	4621
Gaines County (Cedar Lake)—		
Stanolind, Hall 1	159	4825
Gaines County (Seminole)—		
Amerada Pet. Corp., Mathews 3-A	830	5370
Riley 8-A	717	5320
Hockley County (Duggan-Slaughter)—		
Geo. P. Livermore, Inc., Glimp 3	1490	5034
Magnolia, Mallet 3-F	962	4999
Sid Richardson et al, Slaughter 2	665	4998
Howard County—		
C. T. McLaughlin & Co., Synder-Shell 2	127	2828
Pecos County (Walker)—		
Cheyenne Pet. Corp. (was F. P. Hynes), White-Baker 1	108	2123
Scurry County (Sharon)—		
Ordovician Oil Co., Alliance 2	167	2496
Upton County (Gulf-McElroy)—		
Gulf, Crier-McElroy 48	6966	2862
McElroy 236	486	2888
Ward County—		
M. H. Black et al, Fee 1	•	2215
Gulf, O'Brien 151	39	2768
O'Brien 157	310	2711
Hutchins 151	508	2771
Winkler County (Hendrick)—		
W. A. Hudson et al, Hendrick-Lion 1	•	2943
Winkler County (Keystone)—		
C. A. Jones et al, Lovett-Gulf 2	110	3264
Yoakum County (Wasson)—		
Aloco Oil Co., Keller-Texaco 11	407	5197
Miller-Texaco 9-B	703	5206
Don Danvers et al, Bennett-Shell 4	944	5286
Willard 9	723	5260
Shell, Hodges 7	745	5230

West Central Texas

Company, Well and Location	Init. Prod. Bbls.	Depth
Brown County (Wildcat)—		
Johnson-Richburg-Mannon, Charter 1	•	639
Brown County—		
Bob Elmore Oil Corp., Cox 2	87	2365
Callahan County—		
Johnson & Holmes, Hickman 1	•	452
Comanche County (Wildcat)—		
Comanche O&G Co., McGuire 1	•	3218
Eastland County—		
E. L. Pinkston et al, Morris 1-A	150	2634
Hamilton County (Wildcat)—		
V. J. Meyer et al, Oats 1	•	3867
Jones County—		
King Oil Co., Seth 2	317	3241
Shackelford County—		
L. H. Choate et al, Green 2	•	872
Georgian Corp., Blach 19	•	551
Hickok P&D Co-Harry Reynolds, Nail 11-A	40	1572
R. H. Roark et al, Montgomery 1	•	920
Tarrant County (Wildcats)—		
E. E. Hoffpauir et al, Davis 2	•	2140
T. Johnson & Mannon, Cannon 1	•	869

West Virginia

Company, Well and Location	Init. Prod. Bbls.	Depth
Boone County—		
Pond Fork O&G, Mooney 2	•	4665
Braxton County—		
Pitts. & W. Va. Gas, Hamric 1	¶0.57	1903
Kanawha County—		
Godfrey L. Cabot, Beane 1	¶2.82	1791
Putnam 16	¶2.58	2006
Lafollette 3	¶0.07	4836
Lincoln County—		
United Carbon, Lincoln Mineral Co. 1	¶ 0.8	3863
Kanawha Gas & Utilities, Black 3	¶0.14	3695
Putnam County—		
Teavee O&G Co., Foster & Gibson 1	¶2.0	1548
Union Explor. & Dev. Gas, Paul 2	¶0.1	2120
Upsher County—		
Central Gas Co., Smallridge 1	•	2000
Wayne County—		
So. W. Va. Gas, Preston 2	¶0.24	3068
Owens-Libby-Owens, Baldwin 23	¶0.18	1646
United Carbon Co., Ferguson 1	¶0.12	3100

Wyoming

Company, Well and Location	Init. Prod. Bbls.	Depth
Big Horn County (Torchlight)—		
Clifford S. Johnson 1, cel nw nw 24-51n-93w	•	752
Carbon County (Bailey Dome)—		
Robinson & O'Donnell, State 1, c sw sw ne 16-26n-89w	•	2435
Carbon County (Rock Creek Field)—		
Ohio Oil Co., Lundy 2, se ne nw 34-20n-78w	•	4210
Fremont County (Plunkett)—		
Lincoln O. & G. Co., Tribal 12, ne nw ne 26-1s-1e	15	243
Tribal 13, cel nw ne 26-1s-1e	100	263
Hot Springs County (Kirby Creek)—		
Oscar B. Grace's Government 3, nw nw nw 21-43n-92w	12	420
Sublette (LaBarge Field)—		
Texas Co., Government 1-J, swc nw sw 27-27n-113w	215	1090

•Failures; †Junked; ¶Million cu. ft. gas.

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Ask 20-Acre Spacing for Kadane Field, Archer County

Twenty-acre spacing for wells in the Kadane field, Archer County, was requested by operators at a hearing before the Texas Railroad Commission last week. There are now three wells producing.

Jack and Edward Kadane, operators of the discovery well, asked that the commission fix the allowable on acreage and per-well, with 75 percent allocated on acreage.

WILDCAT REPORT
New Starts and Completions

ARKANSAS
FIRST REPORT

Miller County—Louark Pro. Co.'s Hedrick 1, c se ne 27-19-27, mat.

COMPLETION

Woodruff County—John N. Wadkins' Nathan 1, ne nw 18-5n-2w, abnd 1752 ft.

CALIFORNIA
FIRST REPORTS

Kings County—Chanslor-Canfield-Midway Oil Co.'s Bacquarez 1, sec 17-24-18, lcn, Pyramid Hills area.

Los Angeles County—J. E. O'Donnell's No. 74, 255th st and Waterman, lcn, Torrance-Wilmington area.

Ventura County—Charles P. Johnson's No. 1, sec 24-4-21, lcn, Timber Canyon area.

COMPLETIONS

Fresno County—Jergins Oil Co.'s Cheney Ranch 2, sec 29-14-13, td 7354 ft, plugged 7273 ft, 7-in csg 7200 ft, top Domengine 4536-4636 ft, Kreyenhagen, 3545 ft, 500 bbls 16/65-in choke, estimated 1,000,000 ft gas.

KANSAS
FIRST REPORTS

Barton County—Jones Bros.' Grizzell 1, c n½ nw ne 33-16-12w, lcn. Isern Bros. et al's Lillard 1, c w½ sw se 6-16-11w, dr.

Stafford County—Landon et al's Shaeffer 1, c w½ nw nw 3-21-13w, lcn.

COMPLETIONS

Barton County—British-American et al's Linder 1, nec sw 24-17-14w, 3 mi w Hoisington pool, Anhydrite 905 ft, Topeka 2880 ft, Lansing 3212 ft, Sooy 3420 ft, Arbuckle 3349 ft, sso 3453-55 ft, cored 3450-67 ft, rec 5½ ft lime, no show, abnd 3507 ft.

Greenwood County—C. E. Ash et al's Taylor 1, nw ne nw 7-27-12e, 3 mi e Climax pool, Mississippi 1755 ft, 500,000 ft gas 1762-65, sso 1876 ft, hfw 1877-80 ft, abnd 1880 ft.

Reno County—Cities Service Oil Co.'s Crandall 1, nwc ne 23-23-10w, 8 mi ne Zenith pool, Lansing 3279 ft, Mississippi 3598-3655 ft, Viola 3786 ft, Simpson shale 3890 ft, Simpson sd 3897 ft, 2800 ft water in hole, Arbuckle 3960 ft, Abnd 3964 ft.

Pratt County—Skelly's Helmke 1, c w½ sw sw 1-27-13w, new horizon Iuka pool, Arbuckle 4353 ft, td 4367 ft, 1500 gals acid, 1572 bbls, 39.1-gr.

Sedgwick County—Olson Oil Co.'s Macredie 1, c n½ ne ne 15-29-2w, 6 mi n Latta pool, Lansing 2929 ft, Mississippi 3547 ft, so 3564-73 ft, td 3576 ft, pb 3572 ft, 1000 gals acid, showed 3 bbls oil ½ bbl water per hour, abnd 3576 ft.

SOUTH LOUISIANA
FIRST REPORT

Rapides Parish—Chamberlee & Pitts' Eola Realty Co. 1, sec 12-4n-3e, lcn, Wilcox test.

COMPLETION

Plaquemines Parish—Tide Water's Buras Levee Dist. 9, new sd Venice fld, flwd 302 bbl 37-gr oil dly via ⅛-in ch from 10,600-660 feet, tbg press 2175 lbs.

NORTH LOUISIANA
FIRST REPORTS

Madison Parish—H. L. Hunt's Lancaster 1, sw 2-14n-12e, dr.

Union County—Walter B. Rheineck's Hudson 4, se 7-23n-1e, spd.

COMPLETIONS

Caldwell Parish—David J. Crawford's La. Cent. Lbr. Co. 1, c se sw 30-12n-4e, abnd 2520 ft.

V. V. Ryan's La. Cent. Lbr. Co. 1, ne ne 16-12n-4e, abnd 3020 ft.

MICHIGAN
FIRST REPORT

Alpena County—Schorn & Thalman, Tr.'s Dean 1, nw ne sw 16-30n-8e, lcn.

COMPLETIONS

Calhoun County—Muskegon Dev. Co.'s Allison 1, sw sw nw 15-2s-4w, Traverse lime 1721 ft, abnd 1757 ft.

Montcalm County—Columbia O. & G. Co.'s Olson 1, nw nw se 27-11n-7w, Dundee lime 3092 ft, abnd 3114 ft.

MISSISSIPPI
COMPLETION

Tishomingo County—F. F. Mellen & Raymond Gear's Wood 1, se 21-4s-11e, elev 540 ft, Tuscumbia 49 ft, Maury shale 450 ft, Chattanooga black shale 459 ft, Brownsport 469 ft, Wayne 726 ft, Trenton 807 ft, Carter sand 1032 ft, Knox dolomite 1547 ft, abnd 1845 ft.

NEBRASKA
FIRST REPORTS

Otoe County—Findeiss & Ziegler et al's Ritter 1, c ne ne 26-7n-12e, pits.

Richardson County—McNulty & Bass et al's Cander 1, sw nw sw 15-2n-13e, dr 2000 ft. Garretson & Knisley et al's Bankers Life Ins. 1, c sw sw 30-3n-16e, rur 65 ft.

COMPLETION

Richardson County — Pioneer Oil Co.'s Hough-Hill 1, c se sw 6-1n-16e, 1 mi nw Fall City pool, Mississippi 2127 ft, base Mississippi 2288 ft, Misener 2500 ft, Hunton 2506 ft, abnd 2514 ft.

OKLAHOMA
FIRST REPORTS

Pottawatomie County—O'Correr & Townsend et al's Lynn 2, nec nw 28-6n-4e, dr.

Tulsa County—Eppler et al's McBirney 1-A, c sw sw 12-17n-13e, dr.

COMPLETIONS

Beaver County—Mid-Plains Dr. Co.'s Watkins 1, cwl nw se se 7-6n-20e, 2 mi s Liberal, abnd 50 feet.

Muskogee County—Feltz & Hyde et al's Moore 1, nw se se 4-14n-17e, 2 mi nw Muskogee pool, Muskogee sd 1808 ft, base 1883 ft, Timber Ridge sd 1884 ft, base 1893 ft, Brown

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lime 1901-2104 ft, Brown shale 2104 ft, Viola 2382-90 ft, Wilcox 2458-64 ft, abnd 2478 ft.

Okfuskee County—Keener O. & G. Co. et al's Dudgeon 1, ne sw se 36-12n-9e, 1½ mi n Okemah, Gilcrease zone 3055 ft, 5½ in csg 3276 ft, td 3297 ft, pb 3115 ft, shot 53 qts 3084-3110 ft, 669 bbls, 35-gr, new fld.

Stephens County—Danciger et al's Hefner 1, sec 3-4s-4w, 2 mi w Healdton pool, top sand 2803 ft, top Arbuckle 3609 ft, abnd 4256 ft.

NORTH TEXAS
FIRST REPORTS

Archer County—Home Oil Co.'s Spain 1, subd 55, blk 8, Meade Pasture, lcn. Jack Storey et al's Wilson 1, nec lot 4, sec 86, ATNCL sur, dr 915 ft.

Clay County—Shell's Coleman 1-A, nec blk 24, Calhoun CSL sur A-80, mim for 5500-ft test.

Young County—Echols & Fentress' Baker 1, sec sec 11, R. Richardson sur A-1852, lcn.

COMPLETIONS

Archer County—Gibson & J. F. O'Donohoe's Jentsch 1, nec of H. Jentsch Sur A-995, abnd 4806 ft.

Clay County — Geo. Golden et al's First Texas Joint Stock Bank 1-B, blk 9, Thornberry subd, abnd 1360 ft.

King County—J. B. Cunningham & Cannon's Thorman 1, W. E. Browder sur, anhydrite 1591 ft, trace gas 1836-40 ft, trace oil 1870-90 ft, abnd 2304 ft.

Wichita County—Underwood Oil Co.'s Owen 1, swc blk 49, Specht-McCutchin subd, abnd 1253 ft.

EAST TEXAS
FIRST REPORT

McLennan County—Frank Place et al's Hackney 1, ne part 95-ac tr and I. Robbins sur, 4 mi se McGregor, sd 650 ft.

Shelby County—Cougar Oil Co.'s Jones 1, (217-ac tr), John Latham sur, mat.

COMPLETIONS

Hill County—Rush & Sanders' Hutchinson 1, west 11-ac of 152-ac tr, L. H. Williams sur, elev 642 ft, abnd 830 ft.

Lamar County—T. M. Parmley et al's Townsend 1, nwc 110-ac tr, J. S. Porter sur, elev 430 ft, Basal Woodbine 360-90 ft, Fredericksburg 390-420 ft, Trinity 630 ft, abnd 1610 ft.

Red River County—J. F. Morrissey et al's Tyer 1, sec 40-ac lse, J. R. Miro sur, elev 425 ft, Blossom sand 1100-18 ft, sub-Clarksville 1598 ft, Georgetown lime 2392 ft, abnd 2910 ft.

Wood County—E. C. Johnston et al's Green 1, c n 20-ac of s 40-ac of e½ of 160-ac tr, J. P. Mosely sur, 3 mi ne Hawkins, elev 366 ft, Pecan 3196 ft, Austin chalk 4456-4540 ft, sub-Clarksville 4540 ft, Woodbine series 4773 ft, abnd 5100 ft.

SOUTH TEXAS
FIRST REPORTS

Brooks County—La Gloria Operators Committee's Riley 1, lot 11, block 8, Ragland & Herring La Gloria townsite subd, 3590 ft se Arguellez 1, mi.

Jackson County—Wynn Crosby Dr. Co. et al's Gayle 1, A. M. Clare sur, ab 12, on 200-ac tr out of 818.5-ac lse, 4 mi ne La Ward, 6500 ft test, Mid-Continent farmout, lcn.

Jim Wells County—Henshaw Bros. et al's Grossman 1-B, on 80-ac "B" lse, out of 213.4-ac tr in blks 2 & 3, Dibbrell-Sawyer & Gallagher subd, Casa Blanca gr, 2000 ft se Grossman 1 disc well, 5900 ft test, Henshaw rig, lcn. La Gloria Operators Committee's Lafferty 1, on nw 37.5-ac of 154-ac tr, Tide Water lse, La Gloria townsite subd, 1½ mi ne gas-distillate prod, set conductor pipe.

Jim Hogg County—Sun's McCampbell 1, 8017-ac lse, Las Vivoritas & San Antonio Baluaret grs, elev 501.6 grn, 5300-ft test, lcn.

La Salle County—William H. Spice's Reed 1, 80-ac lse, T. Conlaw sur 124, 12 mi s Los Angeles, Henshaw Bros cont, mi.

Brooks County—La Gloria's Arguellez 1, lot 28, blk 10, W. W. & Harriett R. Jacobs La Gloria townsite subd, 4765.37-ac tr, gas & distillate perf 6037-60 ft and 6545-60 ft for dual completion, td 6650 ft, extends La Gloria fld, 4800 ft se.

Caldwell County—Ellmag's Connely 1, 461-ac tr, John D. Rains sur, completed 2675 ft, 12.16 bbls on pump, 1¾-in working barrel, td 2860 ft, ext Tinney Creek fld 1 mi se.

Duval County—Bridwell's Rogers 2-D, 120-ac "D" lse, J. Poitevent sur 21, ab 467, 930 ft se Rogers 2-B dry hole, sw prod, abnd 4500 ft.

Goliad County—Nelson & Cron's Albrecht 1, 400-ac tr, Manuel Corriona sur, 13 mi nw Goliad, abnd 3605 ft.

Jackson County—Humble's Egg 1, 234.36-ac out of 542.2-ac tr, B. J. White lge, ab 81, in blk 7, Sun farmout, 6½ mi ne La Ward, abnd 5266, td 8258 ft.

Jim Hogg County—Sun's East 4, 18,635-ac lse, blk 33, 100 ft w East 2, dry hole, 16 mi sw Hebbronville, abnd 4216 ft.

Jim Wells County—La Gloria's Scott 1, lot 1, blk 9, Ragland & Herring La Gloria townsite subd, on 4765.37-ac unit, completed as gas & distillate well, sand 6037-55 ft, 2450 lbs shut-in pres, sd 6180-6205 ft, 2500 lbs shut-in pres, td 6764 ft, extends La Gloria fld 4405 ft e, (Wrongly surveyed as Alby 1).

McMullen County — Magnolia's Rhode 1, Scale & Morris sur, on 2240-ac lse, 4 mi ne Brazil, abnd 3219 ft.

Webb County—Seaboard Oil Co.'s Newton 3, C&M Railway sur 482, on 640-ac lse, 5280 ft nw Newton 1, dry hole, 18 mi nw Oilton, abnd 1810 ft.

TEXAS GULF COAST
FIRST REPORT

Tyler County—Rockland Oil Corp.'s Kountze 1, Hawkins sur, 1½ mi w Rockland fld, 4200 ft sw dry hole, lcn Wilcox test.

COMPLETION

Harris County—G. Echols & J. Mayo's Smith 1, J. W. Moody sur, Cypress pros, twist-off 6900 ft, abnd 7000 ft.

WEST CENTRAL TEXAS
FIRST REPORTS

Brown County—Johnson-Richburg & Mannon's Charter 2, nwc BBB&C sec 20, dr 390 ft. R. Richmond et al's Petross 1, se sw sw HT&B Ry, sec 7, dr 525 ft.

COMPLETIONS

Brown County—Johnson-Richburg & Mannon's Charter 1, ne sw sw BBB&C sec 19, abnd 639 ft.

Comanche County—Comanche O&G Co.'s McGuire 1, Rockefeller sur 3, elev 1180 ft, abnd in Ellenburger 3022-3218 ft.

Hamilton County—V. J. Meyer et al's Oats 1, Francis Hughes sur, elev 1187 ft, Marble Falls 3419 ft, Mississippian 3827 ft, Ellenburger 3839 ft, abnd 3867 ft.

Tarrant County—E. E. Hoffpauir et al's Davis 2, Hiram Blackwell sur, abnd 2140 ft. T. Johnson & Mannon's Cannon 1, V. J. Hutton sur, abnd in Paluxy sand 839-69 ft.

WEST TEXAS
FIRST REPORTS

Crockett County—Geo. T. Morris et al's Hoover 1, I&GN sec 99, blk 1, sp.

Martin County—Magnolia's Teague 1, nwc lab 10, leag 260, Borden CSL sur, mim.

Winkler County — Stanolind Westbrook-Thompson Holding Corp.'s American-Maracaibo Co. 1, nwc PSL sec 19, blk B-26, mim.

NEW MEXICO
FIRST REPORT

Eddy County—Olen F. Featherstone et al's Merchant 1, c ne nw 10-19s-26e, lcn.

COMPLETION

Eddy County—S. P. Yates et al's Ross 1, se nw sw 22-19s-25e, elev 3468 ft, abnd 1200 ft.

Ask Revision of Rules for Caplen Field, Galveston County

Revision of the rule governing bottom-hole pressure tests in the Caplen field, Galveston County, was requested by Sun Oil Company at a hearing before the Texas Railroad Commission last week.

The rule now in effect calls for semi-annual tests of all wells in the field, which is located on Bolivar peninsula. Since the wells are exposed to hurricanes and the corrosive effects of salt water, the company has covered the metal fittings with tar and enclosed the wells in tar paper.

In order to make tests, these protective coverings must be removed, and the company asked that the commission require tests on only six wells to avoid extra work. Company engineers told the commission that tests on six of the 10 producing wells would be sufficient to reflect reservoir conditions accurately.

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MEN IN THE INDUSTRY'S NEWS

H. D. COLLIER, president of Standard Oil Company of California, last week was named board chairman of Standard Oil Company of Texas in a plan of centralizing active management of the company in Texas. Collier, who is the only one of the company's officers who will make his headquarters outside the state, continues as president of the California company, with headquarters in San Francisco.

A. J. Cunningham, who joined Standard Oil Company of California 18 years ago at Billings, Montana, and has been connected with its Texas operations for the past 13 years, has been named president of Standard Oil Company of Texas. Other officers named were E. H. Todd, vice president; R. G. McIntyre, secretary and treasurer; G. M. Foster and G. J. Osborn, assistant secretaries, and H. C. Judd and R. P. Redman, assistant treasurers.

F. E. RICHART, Wellsville, was named president of the New York State Oil Producers' Association during a recent reorganization meeting at Bolivar. Other officers named were George Holbrook and Otto Walchli, both of Wellsville, and John P. Herrick, Olean, vice presidents, and W. F. Hogan, Bolivar, secretary. Directors are John Cochran, E. C. Harder, B. T. Haskins, Walter McEnroe, M. E. Mitchell, J. E. Randall, A. W. Schaller, L. H. Thornton, Holbrook and Walchli, all of Wellsville; John Bradley, Charles A. Chipman, W. L. Davis, John Messer, Leon MacDonald and A. L. Shaner, all of Bolivar; Joe Karl, N. V. Munson and Herrick, of Olean; Harry Goodrich, Richburg; H. W. Patterson, Buffalo; W. H. MacKenzie, Belmont, and William Shoemaker, Bradford, Pennsylvania.

H. J. SUMMY, East Texas district superintendent for Sinclair Prairie Oil Company, has been transferred to Fort Worth to assume charge of a newly created production division office in the Fair building, where the company has maintained geological, land, legal and engineering departments for a number of years. Summy will have supervision over leases in New Mexico, Panhandle, North, East and West Texas.

TOM H. PIKE, JR., west coast district manager for Tube-Turns, Inc., Louisville, Kentucky, has established permanent offices in Los Angeles, at 210 West Seventh Street. The entire west coast and territory inland as far as Salt Lake City will be serviced from the new office.

PAUL WEAVER, chief geophysicist for Gulf Oil Corporation, at the weekly meeting of the Houston Geological Society, on February 6, in the Texas State Hotel, will present for comment and suggestion geological exhibits which the society has prepared for the annual meeting of the parent body, the American Association of Petroleum Geologists, to be held in Houston April 2-4.

GEORGE E. BURTON, West Texas district geologist for Sun Oil Company, has been transferred from Midland to Tyler, assuming charge of the company's expanding geological operations in East Texas. He will be succeeded at Midland by Marion H. Funk, formerly stationed at Lubbock, Texas.

RAY C. KILCHENSTEIN, production superintendent for Magnolia Petroleum Company in East Texas and more recently on a temporary assignment in Mississippi, has been transferred to Kermit, Texas, to become superintendent of the newly created Kermit district, embracing the south portion of the West Texas Permian Basin and operations in Howard and Mitchell counties.

WILLIAM E. DAUGHERTY, assistant West Texas district geologist for Humble Oil & Refining Company, Midland, has been elected vice president of the Midland Geological Society, filling the unexpired term of Robert L. Bates, who quit The Texas Company to join the staff of the New Mexico Board of Mines.

L. M. CLARK, Shell Oil Company, has been named president of the Illinois Geological Society. Other officers named are C. B. Anderson, Gulf Refining Company, vice president, and Robert G. Kurtz, The Ohio Oil Company, secretary.

HARRY J. SCHULTZ has been appointed central regional manager of the construction equipment division of Worthington Pump & Machinery Corporation, with headquarters in Chicago. He was formerly manager of the contractors division of the Independent Pneumatic Tool Company.

JAMES W. REES, office and employment manager for The Pure Oil Company at Chicago, has assumed duties as assistant general purchasing agent of the company. A native of Dayton, Ohio, he has been with the company since 1925, and has also been stationed in company offices in Columbus and Pittsburgh.

M. L. CASHION, Gulf Oil Corporation, will deliver a paper on "The Drilling of Abnormal Pressure Salt Water Flows" before the Gulf Coast Section of the American Institute of Mining & Metallurgical Engineers, meeting February 4 at the Plaza Hotel, Houston.

E. L. SMITH, Dallas producer and president of the Texas Division of the Mid-Continent Oil & Gas Association, has announced that the twenty-second annual convention will be held at Beaumont October 9-11.

E. C. HACKER, president of Hacker Pipe & Supply Company, Los Angeles, died January 26. He established the company in 1931, and before that time was with The Grinnell Company.

ROBERT E. KING, West Texas-New Mexico district geologist for Shell Oil Company, has been named president of the West Texas Geological Society. Fred F. Kotyza, Tide Water Associated Oil Company, and W. G. Moxey, Stanolind Oil & Gas Company, were elected vice president and secretary - treasurer, respectively. All make their headquarters at Midland.

King, who received his B.A. degree from Iowa State University in 1926 and his Ph. D. from Yale University in 1929, was employed as geologist by The Texas Company in Colombia, South America, from 1929 to 1931; was engaged in geologic research in western and northern Mexico from 1931 to 1933; was with Magnolia Petroleum Company during the first half of 1934; joined Socony-Vacuum Oil Company as geologist in Colombia in late 1934, and in January, 1937, joined Shell Oil Company.

LAWRENCE D. BELL, William J. Conners and Reginald B. Taylor have been added to the directorate of Sterling Engine Company, Buffalo, as membership of that body was increased from seven to ten. Other board members are Spencer H. Logan, chairman; Charles A. Criqui, vice chairman; Addison F. Vars, president; Edward H. Townsend, executive vice president and treasurer; Frank J. Raichle, secretary, and Frank G. Cooban and A. K. Barbee.

HILAND R. SMITH, geologist and development engineer, has established offices in the Dallas National Bank Bldg., Dallas, offering geological services, supervision of drilling and production operations, and property valuations.

HUBERT E. BALE, Oklahoma City, consulting geologist and evaluation specialist, gave a paper on "Evaluation of Oil and Gas Properties" before the Shawnee Geological Society at its January meeting.

JOHN MABEE, president of Mabee Oil & Gas Company, Tulsa, and part time cattle raiser in West Texas, has contributed a stained glass window to the Episcopal Church at Midland, Texas, as a memorial to his mother, Mary Jane Mabee.

WILLIAM CLAY, of Clay Bros. Drilling Company, Wichita, Kansas, has established a branch office in the Fair building, Fort Worth. The company operates rigs in the Texas Panhandle and West Texas-New Mexico districts, and has developed oil production in the former area.

G. E. CASSIDY has been appointed engineer for a new General Applications Section of General Electric Company's

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MEN IN THE INDUSTRY'S NEWS

Industrial Engineering Department. He is responsible for such applications as central station auxiliary drives, dynamometers and engine-testing equipments, reciprocating and centrifugal compressors.

ALEXANDER DUESSEN, chairman of the steering committee for the American Association of Petroleum Geologists' annual meeting, to be held April 2-4 at Houston, has announced chairmen and personnel of committees for the event. Assisting him on the general committee are R. L. Beckelhymer, Cliff Boles, George S. Buchanan, L. P. Garrett, Marcus A. Hanna, William B. Heroy, Wallace C. Thompson and John M. Vetter.

Olin G. Bell, Humble Oil & Refining Company, as chairman of the hotel and registration committee, is being assisted by F. G. Evans, W. A. Gorman and J. A. Wheeler.

D. Perry Olcott, Humble Oil & Refining Company, is chairman of the technical program committee, and Marcus A. Hanna, Gulf Oil Corporation, and H. B. Peacock, Geophysical Service Corporation, are vice chairmen. Members are John G. Bartram, Alfred H. Bell, Orval L. Brace, Herschel H. Cooper, Ronald K. DeFord, Carroll E. Dobbin, Joseph H. Markley, Shirley L. Mason and Earl B. Noble.

Paul Weaver, Gulf Oil Corporation, is chairman of a committee arranging an exhibit of Gulf Coast geology, and is being aided by W. F. Calohan, Lon D. Cartwright, Jr., J. Brian Eby, W. E. Greenman, F. W. Rolshausen and Walter H. Spears.

W. A. Clark, Jr., Schlumberger Well Surveying Corporation, chairman of a committee arranging research laboratory tours, is being assisted by Stuart E. Buckley, Hillard W. Carey, William M. Cogen and William L. Horner.

J. A. Culbertson, Continental Oil Company, is chairman of the field trips committee. Members are Wayne F. Bowman, James K. Rogers, Martin M. Sheets, M. H. Steig, L. P. Teas and A. G. Wolf.

Ben C. Belt, Gulf Oil Corporation, is chairman of the finance committee, with Morgan J. Davis and Dugald Gordon as members. George Sawtelle, Kirby Petroleum Company, is chairman of the entertainment committee, and is being aided by Sam Dunnam and T. I. Harkins.

C. L. Lockwood, C. D. Lockwood's Texas Oil Reports, is handling publicity and pamphlet activities. Carlton D. Speed, Speed Oil Company, is chairman of the reception committee, with W. A. Reiter as a member of the committee.

K. H. Crandall, Standard Oil Company of Texas, is chairman of the transportation committee, with C. L. Lake and J. Boyd Best as members, while W. G. Saville, Torsion Balance Exploration Company, is golf committee chairman, and is being assisted by R. J. St. Germain and Donald Mathes.

RALPH R. NEWQUIST has been appointed manager of the Houston district office of Allis-Chalmers Manufacturing Company. Since joining the company in 1934, Newquist has been stationed in the district offices at Chicago and Pittsburgh, and more recently at Boston. Prior to that he was connected with several other engineering and electrical firms. He is an electrical engineer graduate of Pennsylvania State College. At Houston, he succeeds K. P. Ribble, who has obtained leave of absence for purposes of health.

WILLIAM W. GRUBER, West Texas drilling contractor; Harry A. Ringle, operator, both of San Angelo; and Charley Nelson of McCamey, a driller, were injured January 27 when lightning struck a camp shack near Bakersfield, Pecos County.

GEORGE W. PRYOR, petroleum engineer with the Louisiana Department of Conservation, last week traced development of the Shreveport field before the Ark-La-Tex Chapter of the American Petroleum Institute's Division of Production.

JOHN C. CHAFFE has been appointed district manager of the Philadelphia office of Tube-Turns, Inc., Louisville, Kentucky. His office will cover an area that extends through Wilmington, Baltimore and Washington. The Philadelphia office was simultaneously moved from the Lafayette Building to the Broad Street Station Building.

HENRY M. HALE, Eastern sales manager for Caterpillar Tractor Company, Peoria, Illinois, has resigned to enter into partnership with John R. Taylor as the Taylor-Hale Machinery Company, Memphis. The newly formed company will handle sales and service of Caterpillar Tractor Company products in an extensive southern area.

CHARLES H. HUDSON, former petroleum engineer for the Socony-Vacuum Oil Company in Colombia, South America, has joined the Magnolia Petroleum Company as assistant district petroleum engineer at Alice, Texas.

C. A. McADAMS, scout for Sinclair Prairie Oil Company in the Texas Panhandle, has been transferred from Amarillo to Midland for duty in the West Texas-New Mexico district.

D. A. DECHMAN, production manager for Cities Service Oil Company (Pennsylvania), last week announced removal of company offices from Fort Worth to the Esperson Building, Houston. The firm operated in Fort Worth as Warner-Quinlan Company of Texas.

ROBERT BISCHOFF, formerly associated with Koppers Company in a sales and engineering capacity, has been appointed sales manager of The Ludlow Valve Manufacturing Company, Troy, New York, succeeding Joseph H. Egolf, retired.

MEN IN THE INDUSTRY'S NEWS

L. A. MULLEN has been made manager of sales of tubular products for Pittsburgh Steel Company, Pittsburgh. He has been associated with the company since January, 1938, first as assistant district sales manager at New York, later as district sales manager at Chicago, and for the past year as assistant manager of sales in Pittsburgh. Before joining the company, for ten years he had been associated with Republic Steel Corporation in various sales capacities.

WILLIAM B. BAYOR has been made assistant district sales manager for Pittsburgh Steel Company at Los Angeles. Since September, 1936, he has been field engineer for the company in the Los Angeles district, and in addition to his sales duties in his new capacity, he will continue to carry on his engineering functions. Before joining the company, he was associated with Hughes Tool Company, Houston.

JAMES G. O'CONOR, recently of Washington where he has been active in an advisory capacity to the United States Ordinance Department, has been named president of Filtrol Corporation, Los Angeles. He succeeds L. R. Steander, who will remain active as a director. O'Conor completed 20 years of service with Gilbert & Barker Manufacturing Company, where he was foreign manager of manufacturing and sales. Earlier, he was connected with W. R. Grace & Company and with Westinghouse Electric & Manufacturing Company.

LEONARD F. NELSON, 41, advertising executive and publicity manager for Oklahoma Gas & Electric Company, Oklahoma City, died January 25 after a heart attack.

RALPH H. BURKETT, production foreman for The Carter Oil Company, at St. Elmo, Illinois, has been awarded a 20-year service pin. Thelmer C. Pavatt, production sub-foreman at St. Elmo, was awarded a 10-year pin.

C. L. MAGUIRE, president of Roosevelt Oil Company, and Mrs. Maguire, have left Michigan for a three-month vacation in Honolulu.

GEORGE BELL, scout for The Pure Oil Company for several years and for the past year production engineer for Smith Petroleum Company, has resigned. He will retire, temporarily at least, from the oil business.

J. MORRIS, drilling superintendent for Colon Development Company in Western Venezuela, is spending a few weeks in Houston.

W. DALE RUSSELL, Republic Supply Company of California, has been elected chairman of the wildcat committee of the California Oil & Gas Association. Other officers are Charles D. Wagner, Wagner-Morehoues, Inc., vice chairman; L. L. Aubert, Bankline Oil Company, treasurer, and D. S. Kilgour, California Oil & Gas Association, secretary.

F. B. PARRIOTT, co-founder of W. I. Southern, Inc., announced reorganization of the firm as Leader Oil Company, with offices in Tulsa. Parriott is president and general manager; H. R. Caldwell, vice president; H. A. Zellman, secretary-treasurer, and Marshal Brown, geologist, engineer and production superintendent. W. I. Southern, Inc., was organized by the late W. I. Southern and Parriott in October, 1935.

HOWARD BERKEY, Tulsa operator, has been elected president of the Southern Hills Country Club, Tulsa. Other officers include Howard J. Sherman, first vice president; W. M. Bovaird, president of Bovaird, Inc., second vice president; P. H. Bohart, vice president, Gulf Oil Corporation, third vice president; L. W. Grant, treasurer, and John M. Winter, Jr., secretary.

PHIL HURRY, geologist for California and Arabia Oil Company on Bahrein Island, is to arrive in San Francisco March 1 for a visit in the United States. His home is in Oklahoma City.

J. S. ABERCROMBIE, Elwood Fouts and W. M. Gaston last week organized Old Ocean Pipe Line Company as a Texas corporation with headquarters in Houston.

BEN L. ROBERTSON, John L. Robertson and Alice L. Robertson, all of Nowata, last week organized Life Line Pipe Company as an Oklahoma corporation.

W. EARL CUNNINGHAM has discontinued his connection with Oil Well Drilling Company, of which he was part owner, field manager and secretary. His future plans are indefinite.

S. S. LEARNED, Phillips Petroleum Company, has been promoted from chief engineer to assistant manager of the company's newly organized gasoline pipe line department. A. W. Hubbell is manager of the department.

MERLE GILES, scout for The Carter Oil Company, formerly assigned to the Seminole area, Oklahoma, is now in Tulsa on a special assignment.

PAUL J. KELLY, Phillips Petroleum Company, has been transferred from Borger, Texas, to Oklahoma City.

C. C. TOOMEY, president of Mid-Co Oil Corporation, Tulsa, has been named president of the Tulsa Y. M. C. A.

EMMETT J. COCHRANE, sales representative for Emsco Derrick & Equipment Company at Tulsa, has been transferred to the Oklahoma City office.

REGINALD G. RYAN, consulting geologist, has moved his headquarters from Baton Rouge to 417 West Clay Avenue, Houston.

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NOTES FOR THE Equipment Buyer and User

Tong

WEB WILSON OIL TOOLS

A tong designed for slim-hole work, essentially a small reproduction of the company's regular rotary tong, has been announced by Web Wilson Oil Tools, Huntington Park, California.

The tong provides a distance from the center of a 4½-inch tool joint to the end of the lever of 36 inches. Special jaws may be obtained to adapt the

Web Wilson Slim-Hole Tong

tong to drilling with tubing or small casing, designed so they will not crush or indent the pipe.

To change the tong from one range of tool joint size to another, the outside or lug jaw is removed and a similar one put in its place. Replaceable jaws are marked with their size range. With a series of four lug jaws, the tong covers a range of 2¾ to 8⅝ inches.

Sump Pump

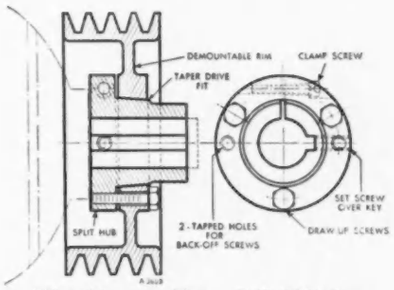
The Imperial Brass Manufacturing Company, 1200 West Harrison Street, Chicago, has issued Catalog 441, containing eight pages descriptive of its sump pumps. The units have floatless electrical control, and are available in five sizes for sump depths of 2, 3, 4, 6 and 8 feet. Rated capacities of all models are 3650 gallons per hour against total discharge head of 5 feet, ranging to 500 gallons for a head of 24 feet.

V-Belt Sheave

WORTHINGTON PUMP & MACHINERY COMPANY

A V-belt driver sheave incorporated as a standard item in its Multi-V-Drive line, designed for applications where quick-mounting of sheave to shaft, and dismounting from shaft, are desirable, has been announced by Worthington Pump & Machinery Corporation, Harrison, New Jersey.

Designated Type Q-D, each sheave



Worthington Type Q-D V-Belt Driver Sheave

unit consists of two parts, a longitudinally-split or clamp hub and a V-grooved rim. The hub is clamped to the shaft by means of a cap screw in its flange and is fastened by a standard keyway. A fit equal to a press fit, on shafts up to ten-thousandths over-size or under-size, is provided. The rim is taper-fitted to the hub and is fastened with three draw bolts.

To remove the rim, the draw bolts are withdrawn and two of them are inserted in holes so tapped in the rim that the bolts act as jamb screws and bear against the hub to force the rim off the taper without disturbing the position of the hub. No pounding or prying is required to remove either the rim or the hub.

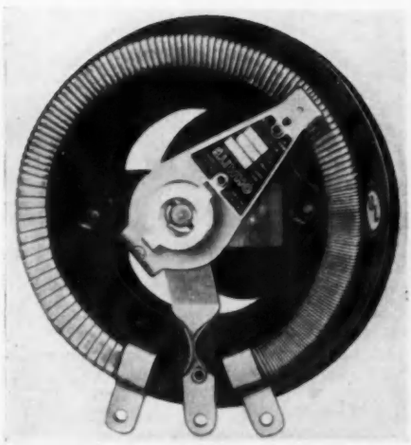
The sheaves are available in the complete range of standard driver sizes.

Rheostat

OHMITE MANUFACTURING COMPANY

A generator field control rheostat designed to provide smooth, close, gradual control of generator voltage has been announced by Ohmite Manufacturing Company, 4835 Flournoy Street, Chicago.

They are available tapered or uniformly wound, designed to provide control for separately or self-excited generators. They are supplied in 10 sizes, from 25 to 1000 watts, and feature compact vitreous enameled construction.



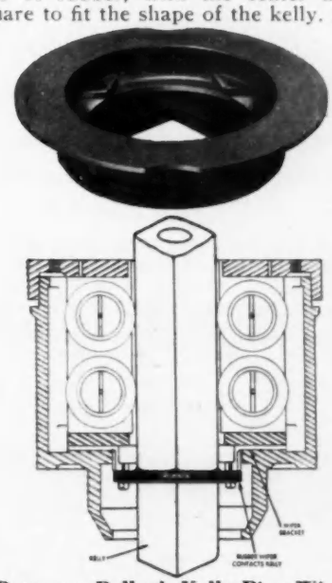
Ohmite's Field Control Rheostat

Pipe Wiper

PATTERSON-BALLAGH CORPORATION

An all-rubber pipe wiper, designed to prevent excess rotary mud from contacting the metal rollers of roller bearing kelly bushings, has been announced by Patterson-Ballagh Corporation, 1900 East 65 Street, Los Angeles.

The wiper consists of a heavy round disc of rubber, with the center holed square to fit the shape of the kelly. It is



Patterson-Ballagh Kelly Pipe Wiper

inserted in the lower part of a Baash-Ross roller bearing kelly bushing. By its use, it is not necessary to use wash water on the kelly, and there is no dilution to the mud. The device is made in three types, to fit three types of kelly bushings. One type includes a wiper bracket to which the rubber element is bolted, and another type consists of the rubber element only.

Pumps

Goulds Pumps, Inc., Seneca Falls, New York, has announced a new industrial catalog for users of pumping equipment in power plant, industrial process work and general applications in manufacturing plants. The book, in sectionalized form, contains bulletins on all the various types of pumps including centrifugal, reciprocating, and rotary pumps, sump pumps, condensate return units, and many miscellaneous units.

Pumps

Pomona Pump Company, Pomona, California, has issued a booklet on "History and Scope of Operations of Pomona Pump Company."

Voltage Regulators

Allis-Chalmers Manufacturing Company, Milwaukee, has issued Bulletin B-6137 on its Type VD rocking contact voltage regulators. They are designed for control of voltage, current, speed and tension in connection with direct

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The knowledge gained through years of work and study by some of the most capable men in the oil industry is set down in the various oil books published and sold by the Gulf Publishing Company. Catalog of these books furnished upon request.

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NOTES FOR THE Equipment Buyer and User

Larkin Packer Company recently held its southern district sales conference in Houston, attended by representatives from Texas and Louisiana fields. Pictured, standing, left to right, are Red Martin, Alice, Texas; W. H. Larkin, vice president and sales manager, St. Louis; Miss Jeanette Rehme, secretary to W. H. Larkin; J. J. Larkin, president, St. Louis; Dick Johnson, Corpus Christi. Sitting are Bob Nesmith, Houston; Joe Dumenil, Lafayette, Louisiana; M. L. Jackson, Shreveport, and Tom Alexander, southern district manager, Houston. Art Rucker, Ft. Worth, attended the conference but is not shown in the picture. The Houston conference followed a similar conference held at the home office in St. Louis, at which representatives from Oklahoma, Kansas and Illinois basin fields were in attendance.

current machines. The bulletin, illustrated by photographs and wiring diagrams, shows how the regulators may be applied to direct current problems.

Abegg & Reinhold Starts $50,000 Expansion Program

Involving an expenditure of approximately $50,000, construction was started this month on an addition to the plant of Abegg & Reinhold Company, Ltd., 2451 East 26 Street, Los Angeles. The building will provide increased heat-treating facilities, and will be 160 x 60 feet. Completion is scheduled for March 1.

Hercules Takes Additional Factory Building at Canton

Acquisition of a four-story factory building adjoining its property has been announced by Hercules Motors Corporation, Canton, Ohio. Work of reconditioning the plant to accommodate expanding production requirements has begun, and plans call for beginning operations in the new unit by April 1.

In taking over the property, the company adds 164,000 square feet of factory floor space to its present facilities, and approximately seven acres of property to its present tract. It gives the company possession of an industrial island in the center of the city covering approximately 16 acres.

Engines

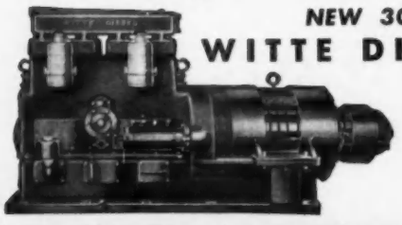
J. I. Case Company, Racine, Wisconsin, has issued a 4-page bulletin on its line fo LAE engine units, designed for oil field, pumping and general service. The engines can be equipped to burn gasoline, tractor fuel or natural gas. The folder shows some of the setups available, and gives power curves and dimension drawings.

Completion Procedure

Brown Oil Tools, Inc., Houston, has published a booklet, "Brown Well Settings," describing procedures and tools used in making various well completions and cement settings.

Only 1¢ a Kilowatt Pays for Your POWER and LIGHT WHEN YOU HAVE

NEW 30,000 WATT
WITTE DIESELECTRIC PLANT



This new 40 H.P. WITTE sets a new standard in efficient, low cost operation. Others 2,500 to 30,000 watts; 4 to 40 H.P. vertical, horizontal; 1, 2 and 4-cylinder. Write for illustrated literature.

1962 Oakland Ave.

SEE YOUR SUPPLY DEALER

WITTE ENGINE WORKS—KANSAS CITY, MO.

Squeaks from the Bull Wheel

Definition

"What would be your notion of absent mindedness?"

"I should say that a man who thought he'd left his watch to hum, and took it out'n 'is pocket to see if he'd time to go hum and get it, was a leetle absent minded."

Superlative Service

Height of service station service to customers has been reached at Washington, Pa., where a go-getting station operator has opened a canine rest room for the convenience of customers' pets.

Signs pointing to "Fido's Comfort Station" lead the curious to a dog house surrounded by fences of convenient height, an imitation fire hydrant, and a yard filled with soft dirt.

First patron was a bulldog.

He May Be Disappointed

Army Sergeant—Have you any preference?

Draftee—Yes, sir.

Army Sergeant—What would you like to be?

Draftee—An ex-service man with a pension.

Not This Sailor

"Did that sailor attempt to kiss you last night?"

"Why, mother, you don't think he came all the way from the battleship just to listen to our radio, do you?"

Expert Appraisal

Gal—You remind me of the beautiful moon.

Gob—What do you mean?

Gal—Kinda bright, but not so hot.

Speaking of Bugs

You've been the information clerk here for some time now; where do all the bugs go in the winter?

Search me.

No, thanks; I just wanted to know.

Counter Propaganda

Just look how strong and famous spinach made Popeye.

Yeah, and look how it rotted his teeth out.

Broadminded

"Your wife is very broadminded, isn't she?"

"Oh, yes. She believes there are two sides to every question—her own and her mother's."

Hm-m-m

You wish a position as proofreader?

Yes, sir.

Do you understand the requirements of that responsible position?

Perfectly, sir. Whenever you make any mistakes in the paper, just blame 'em on me, and I'll not say a word.

On Her Way

I know it's the third time this week, Mary, but my husband just phoned, and he's bringing three men to dinner. How long will you need to get ready?

I'm ready now. I packed my trunk the last time it happened.

Disagreement

What in the world is all this loud talking and arguing about in the living room?

Aw, Grandpa's trying to show Pop how to do my homework.

Verily, Verily

It says here in the paper that in Africa a single spearhead will often purchase a wife.

That's nothing. I know of plenty of instances in this country where a bonehead got one.

So Appealing

Where did you get this wonderful follow-up system? It would get money out of anybody.

I compiled it from the letters my son wrote me from college.

Makes a Difference

What is half of eight, John?

Which way, Teacher?

What do you mean, which way?

On top or sideways.

What difference does it make?

Well, half of the top eight is zero, but half of the eight sideways is three.

Definite Tastes

Little Polly, on a visit to her aunt, was offered some left-over fragments of the Sunday dinner. She declined them politely.

"Why, Polly, don't you like turkey?"

"Only when it's new."

His Business

"What do you do when all the world is gray and gloomy?"

"I deliver the milk."

No Defense

Grumbler—I never can find a thing in this house. I would certainly like to know where my hat went.

Mrs. G.—So would I. You weren't wearing it when you came home last night.

Misnomer

This vanishing cream is a fake.

What do you mean?

I've been using it on my nose for two weeks, and it is just as long as it ever was.

Where Silence Is Golden

"Miss Alice ain't home. She's gone down to de class."

"What class?"

"Miss Alice gwine to be married, you know, an' she's takin' lessons in domestic silence."

Smart Boy

"When water becomes ice, what is the greatest change that takes place?"

"The price, sir."

Undependable

Is this village lighted by electricity?

Only when there's a thunder storm.

Boss Not Taking Hints

Mr. Bangs, I am about to be married, and on my salary we will starve to death.

Well, well; who is the lucky girl?

Pay Telephone Story

I have your party. Deposit five cents, please.

Whazzat?

Please deposit your money.

Listen, girlie, what I want is a conversash'n from a fren, not finanshul advice from a female stranger. I've had too much o' that a'ready.

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GOTT WATER CAN
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GOTT Water Cans are the practical way to keep drinking water cool for long periods, protected from impurities and always handy to the job. Snug fitting large removable top, strongly built to withstand rough usage. GOTT Water Coolers have extra large covers and a handy non-leaking push button faucet. Your Supply Store has them, get one today! . . . . . .
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